Model Course Curriculum on Business Architecture for MBA Programs

A White Paper by:

The Open Group India Academic Initiative in Architecture (INITIATE) Work Group

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Model Course Curriculum on Business Architecture for MBA Programs
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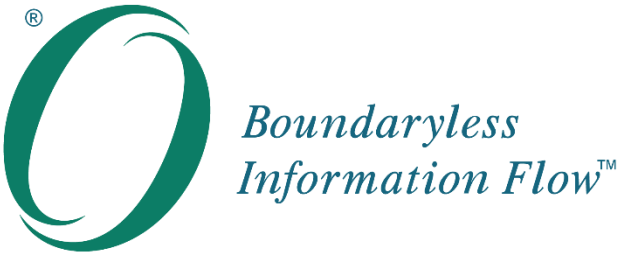

Boundaryless Information Flow™ achieved through global interoperability in a secure, reliable, and timely manner

Executive Summary

This document is a model curriculum for a course on Business Architecture targeted at postgraduate management programs. It includes a framework for course delivery using pedagogical initiatives such as experiential learning and industry exposure. The course curriculum is designed to help multiple stakeholders such as Universities and Higher Education Institutions (HEIs), faculty members, students, industry, and government academic bodies in developing future-ready Business Architects with the training and competence to drive transformation programs and be ready to be deployable for real-time engagements.

This document includes the curriculum for the course and encompasses themes like how Business Architecture helps the business to understand the complete impacts of key business and technology decisions before making them, increased operational efficiency, and capacity for growth. It also signifies why Business Architecture is needed, how to understand organizational strategy and build Business Architecture that achieves enterprise strategy, and how companies can benefit from a well-defined Business Architecture.

Model Course Curriculum on Business Architecture for MBA Programs

Many organizations struggle with managing the complexity of their business. Organizations are driven towards how we achieve the mission, vision, their goals, and how strategically they can progress towards realizing their strategic aims. This course curriculum helps in understanding and defining Business Architecture, which can help in:

- Understanding the organization's mission, vision, and values
- Reviewing the organizational chart, financials, and available business plans
- Cataloging their Information Technology (IT) at a logical level, enterprise business, IT strategy

HEIs will be able to use this document to develop courses on Business Architecture for students, and to train their faculty:

- Faculty members will find this document useful to build and deliver their course content
- Industry leaders will get a view of the level of knowledge and skills they should expect from the management students who have opted for this course, and accordingly design institutional mechanisms to integrate them into their organization through further learning and development initiatives
- To help Master of Business Administration (MBA) students to prepare themselves in the Digital Transformation and connected businesses

The curriculum aims to encourage and support the vision of Boundaryless Information Flow™ by raising awareness about the current state of practice in architecture and open standards within the academic community and creating a platform to enable academia-industry collaboration aimed specifically to build and shape the next generation of Business Architects feeding back into the industry, thus advancing the overall practice of architecture in the entire ecosystem.

The Need for Business Architecture as an Academic Discipline

Enterprises today are moving toward the use of technology to drive their businesses and make them leaders in their domain. Technology has become the most important part of any type and scale of business in any sector/industry. Digital technologies have made it possible for industries/businesses to reach their end client/consumer and gain feedback from them directly. The proliferation of social media across all mediums has enabled the consumer/end client to have more choices and have a say in improving the product and its services, and how efficiently they need to be delivered. Hence, it is imperative that when graduates from various disciplines like Engineering, Business Administration, Chartered Accountancy, etc., are about to join enterprises in any industry/sector, they are ready to leverage their knowledge and communicate it well to the business stakeholders and the technology counterparts; i.e., IT within the enterprises. Introductions to subjects like Business Architecture and Enterprise Architecture shall enable these professionals to have a head start and provide an edge to be seamlessly embedded within new age digitally driven enterprises. A high-level awareness of the various nuances and facets of Business Architecture shall enable these postgraduates to define and effectively contribute their specializations across various streams within the enterprises through getting accustomed to the terminology, tools, and the various techniques and frameworks.

The concepts of Business Architecture, its capabilities and value streams for business planning purposes, business processes, and modeling have been around for many decades. The North Atlantic Treaty Organization (NATO) uses business capabilities for scenario planning and trying to abstract the military units being supplied by member nations. The lean discipline also uses detailed value stream maps to wring out efficiency in material usage and information flows. Organizations need a discipline that "*represents holistic, multidimensional business views of: capabilities, end-to-end value delivery, information, and organizational structure; and the relationships among business views and strategies, products, policies, initiatives*" [C220]. The predominant purpose of the MBA is to develop a holistic view of business across areas like marketing, finance, and accounting. In addition to the above basic skills, it is also important that students gain knowledge on the concepts and fundamentals related to Business Architecture in enabling organizations to achieve their strategic business mission and goals. The following sections facilitate an understanding of why Business Architecture is needed as an academic discipline for MBA students.

The Essence of Business Architecture in Enterprise Architecture and Organizational Success

The essence of Business Architecture in Enterprise Architecture and organizational success lies in its ability to align business strategy, processes, and technology to drive efficiency, effectiveness, and value creation. Business Architecture provides a holistic view of the organization by capturing its key components, including its goals, strategies, business processes, capabilities, information, and resources.

Here are some examples of how Business Architecture may help an organization succeed:

- Strategic alignment

  Business Architecture aids in the alignment of business strategy with the aims and objectives of the organization. It offers a clear picture of how various components of the business interact to achieve strategic goals. Company architecture ensures that all efforts are directed toward the expected objectives by sketching out the links between various company aspects such as capabilities, procedures, and information.

- Process optimization

  By detecting redundancies, inefficiencies, and bottlenecks in corporate processes, Business Architecture supports process optimization. It lets businesses simplify and standardize operations, reducing waste, and increasing efficiency. Business Architecture facilitates improved decision-making and continual improvement by visualizing end-to-end processes.

- IT alignment

  Business Architecture aids in the alignment of IT systems and infrastructure with business requirements. Organizations may make educated decisions regarding technology investments by understanding business capabilities and information requirements, ensuring that IT efforts support strategic goals. Business Architecture also facilitates effective integration and interoperability of various systems, hence improving data flow and information sharing within the organization.

- Change management

  A framework for managing organizational change is provided by Business Architecture. It aids in determining the overall impact of changes in strategy, procedures, or technology. Business Architecture promotes efficient change planning, communication, and execution by providing a clear picture of the organization's present and future condition. It reduces disturbance and resistance to change, allowing for a smooth transition to new methods of functioning.

- Value creation

  Business Architecture helps organizations create value by enabling them to discover and capitalize on new possibilities. Organizations can find areas for innovation and growth by analyzing their present business model and capabilities. Business Architecture also aids in the identification of prospective risks and obstacles, allowing for proactive risk mitigation techniques. Organizations may provide innovative goods, services, and experiences that add value to consumers and stakeholders by aligning business and IT activities.

Overall, Business Architecture acts as a link between business strategy and execution, offering a complete picture of the organization and its interdependencies. It allows organizations to make more informed decisions, optimize processes, coordinate technology, manage change, and drive value creation, all of which contribute to organizational success.

The Opportunities and Potential Capabilities of a Business Architecture

There is a large scope for professionals who specialize in subjects like finance, marketing, global luxury goods and services management, international hospitality management, etc., to leverage Business Architecture sensitization as part of their MBA curriculum to effectively drive the innovation and transformation as required. Also, the tools and techniques used to define the overall business processing across the enterprise will help these professionals to define and communicate the changes, structure, and business benefits with well-articulated returns on investments to the Chief Experience Officer (CXO) level audiences. Business Architecture and its elements enable organizations to see the big picture of the domain that is under analysis. Business Architecture provides insights into the important aspects of the organization and how they fit together and highlight the critical components or capabilities. Business Architecture itself can be used as a tool to help change management of an organization.

The potential capabilities of Business Architecture facilitate coordinated and synchronized action across the organization by aligning action with the organization's vision, goals, and strategy. The architectural models created in this process are the tools used to clarify, unify, and provide understanding of the intent of the vision, goals, and strategy, and to ensure that resources are focused and applied to the elements of the organization that align with and support this direction. Business Architecture also helps to align the organization with its business units; details how an organization is structured and demonstrate how elements of the business fit together.

Business Architecture delivers value as an effective communication and analytical framework for translating strategy into actionable initiatives. The framework also enhances the capacity of the business enterprise to enact transformational change, navigate complexity, reduce risk, make more informed decisions, align diverse stakeholders to a shared business vision of the future, and leverage technology more effectively.

Bridging the Gap between Demand and Supply

Academic institutions should collaborate closely with local and global industry partners to understand the specific skill requirements and emerging trends in Business Architecture. This collaboration can inform the design and implementation of relevant curriculum and programs that equip students with the necessary knowledge and skills. By integrating courses on Business Architecture principles, frameworks, and practical applications, academic institutions can ensure graduates are well-prepared to meet the demands of the industry.

By taking a collaborative approach that combines curriculum enhancements, practical experience, and industry partnerships, academic institutions can effectively fill the gap between demand and supply for Business Architecture professionals. This approach equips students with the relevant skills, knowledge, and practical exposure needed to meet industry demands, fostering a seamless transition from academia to the professional world. Ultimately, it contributes to the growth of the Business Architecture field and supports the development of skilled professionals who can drive organizational success through effective business design and strategic decision-making.

Nurturing the Architect Mindset at an Academic Level

Academic institutions can embrace this vision by integrating traditional knowledge with modern frameworks, blending wisdom of the past with the innovation of the future. Emphasizing subjects such as Business Architecture, design thinking, and systems theory can equip students with the tools to navigate the intricacies of the global dynamic business ecosystem, enabling them to leverage their specialization to improve the way business is done in these enterprises across industries and sectors. Furthermore, leveraging experiential learning opportunities, collaboration with industry, and social entrepreneurship initiatives can ignite the passion and sense of purpose among students to architect innovative solutions that address pressing societal issues such as sustainability, inclusive growth, and Digital Transformation.

Nurturing the architect mindset within academic institution setups, can empower the next generation of visionary leaders who are equipped with a deep understanding of country level, regional or global unique challenges and opportunities. They will possess the ability to envision holistic solutions, integrate diverse perspectives, and architect a brighter future for the nation. With a vast potential of young minds waiting to be unlocked, nurturing the architect mindset in academia is not just about providing a curriculum; it is an

imperative step towards realizing a young learner's true potential to transform into a global leader in innovation and the sustainable development of society.

Career Opportunities

The job roles available in the industry need knowledge of various facets of the sector, domain, and of course specializations like finance, marketing, sales, etc. The typical roles available are Business Architect, Domain Architect, Business Analyst, Industry Platform SME, Product Specialist, etc., depending upon the nature of business of the enterprises.

All these roles are customer/end-user facing, and also have high visibility and interaction with the business stakeholders and are seen as business influencers due to the knowledge and specialization these roles bring to enterprises.

Business Architecture offers various career opportunities across industries.

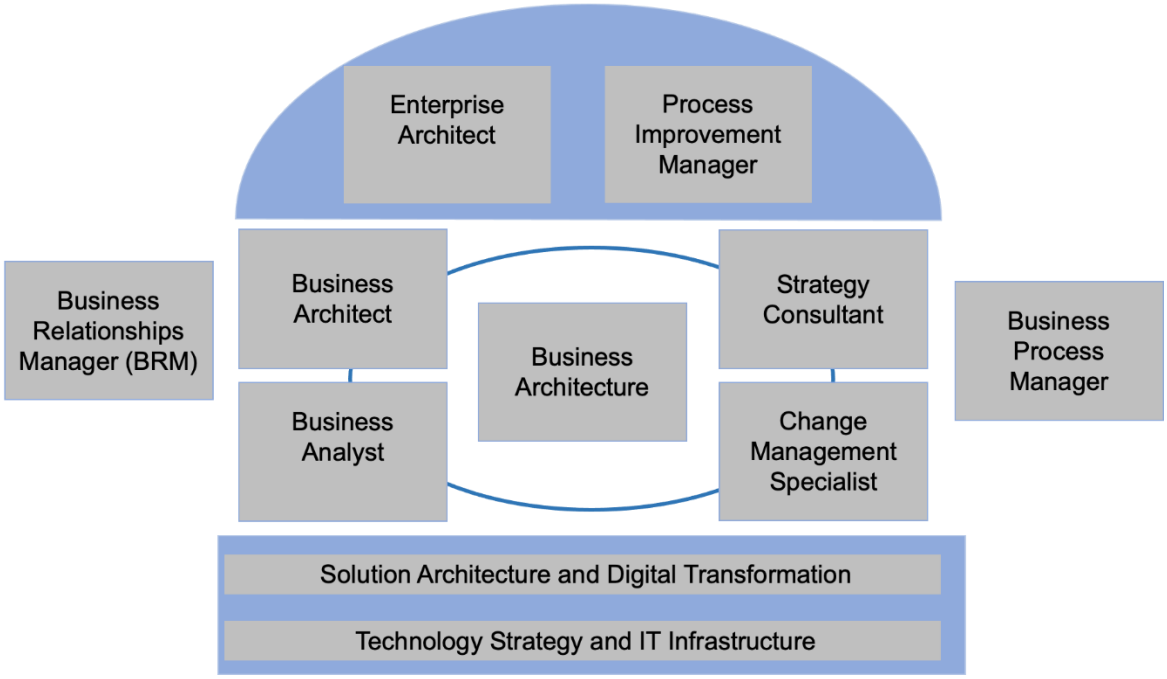

Figure 1: Typical Job Roles in Business Architecture

Typical job roles:

- Business Architect
- Business Analyst
- Enterprise Architect
- Process Improvement Manager
- Strategy Consultant

- Change Management Specialist
- Business Relationship Manager (BRM)
- Business Process Manager

These are just a few of the many career opportunities available in the field of Business Architecture. The roles and responsibilities may vary depending on the organization's size, industry, and specific business needs.

Business Architects are responsible for capturing and modeling the Business Architecture aspects of the Enterprise Architecture for the baseline and target state. This includes identifying the business capabilities, services, and business processes, mapping the value streams, documenting the organization structure, identifying the business locations, mapping the contracts and measures. The Business Architects map the enterprise in a way that it can be consumed by the Application and Technology Architects for their part of the architecture work.

The activities of a Business Architect might include:

- Interpreting the business goals and drivers
- Documenting and communicating the constraints, standards, and guiding principles necessary to define, assure, and govern the required evolution
- Using architectural models and processes to facilitate changes in the organization's structure, business processes, information or data, business systems, and infrastructure

Architect Career Track Essentials

A career as an architect calls for a multi-faced skill requirement. Depending on the role (as shown in Figure 1) various skills are required to be a successful architect, as shown in Table 1.

Table 1: Architect Skills Required

• Leadership skills • Strategic planning skills • Logical analysis • Listening skills • Written and oral communication • Basic project management skills	• Interpersonal communication • Organizational skills • Stakeholder management • Documentation skills • Requirements analysis and review

Reference link:

- TOGAF® Series Guide: Architecture Skills Framework (G198), published by The Open Group, April 2022; refer to: www.opengroup.org/library/g198

Positioning Business Architecture with Other MBA Subjects

As a discipline, Business Architecture is a subset of Enterprise Architecture and both subjects do not exist in isolation. MBA courses are generally designed to help graduates gain a better understanding of general business management functions or focus on specific fields of expertise like finance, sales and marketing, accounting, etc. Universities may aim to differentiate their course offerings through variations around these core fields. But the core concepts around the fields and their content are consistent across programs. MBA subjects can also focus on answering how Business Architecture contributes to organizational effectiveness and leadership development. Discuss its role in understanding the structure, processes, and interdependencies within an organization, informing effective leadership strategies.

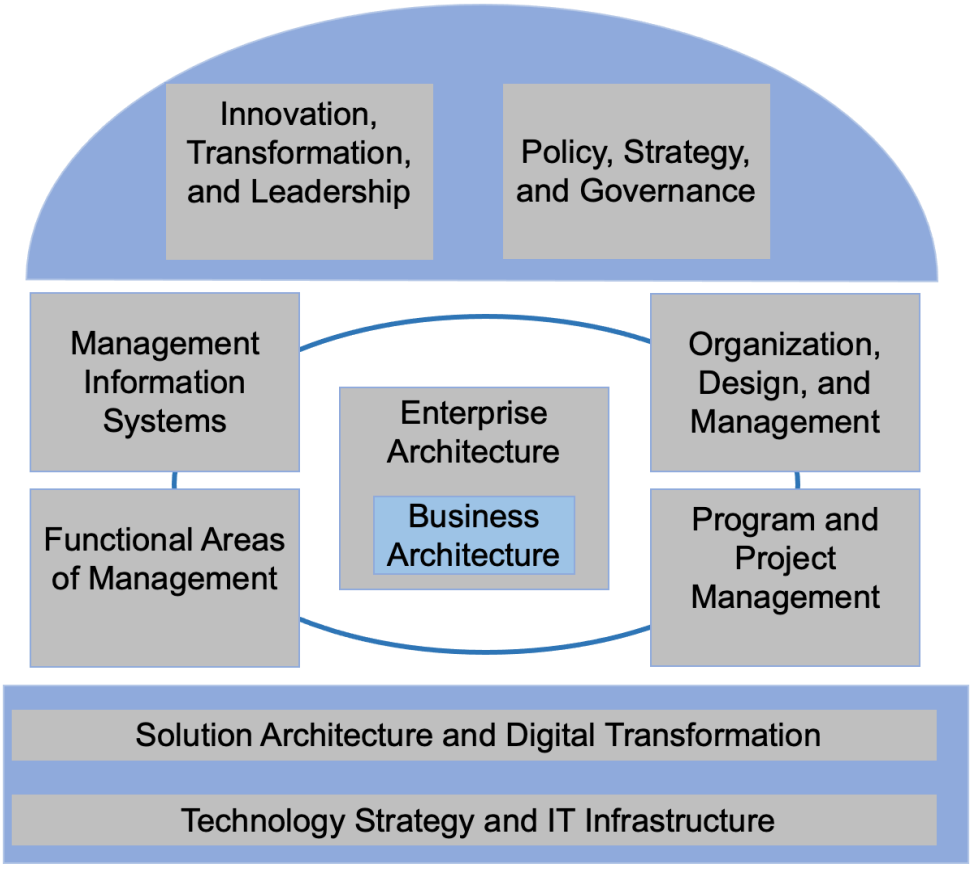

Figure 2: Positioning Business Architecture

Learner Background of the Course

Students who have either a graduate degree in IT, Computer Science, Computer Application, Software Development, or relevant experience in these fields will find this curriculum very relevant, and will relate to the architecture domains of Business, Data, Application, and Technology. Students will find it more relevant to upskill themselves and be ready to be deployable across industries. They will be able to appreciate a curriculum designed for career progression as architects. Students who come with some work experience as

business consultants, and were end users of a few IT applications, would be able to pick this subject with a bit of guidance. Business Architect skills include:

- Experience with business process modeling, Enterprise Architecture, and associated tools
- Ability to visualize growth and build high-level models for future analysis and maturing the current Business Architecture
- Ability to partner with stakeholders to document and communicate values generated from the new capabilities and processes
- Strong interpersonal skills and communication skills
- Ability to translate complex subjects into actionable recommendations
- Program/project management skills and the ability to set clear goals to get desired results

Model Curriculum for a Business Architecture Course in the MBA Program

This section captures the model curriculum for the proposed course within the MBA program with the title "Business Architecture in Practice".

Learning Outcomes of the Course

The main objective of this course curriculum is to give a brief introduction to Business Architecture, the foundation of Business Architecture, its fundamental building blocks, patterns, and frameworks of Business Architecture, and how Business Architecture goes hand-in-hand with Enterprise Architecture and enables organizations to position itself strategically aligned. It is up to the preference of a University/HEI to consider or not consider specific/all section(s) based on specific course structure, duration, and credit weightages.

After completing a course developed based on this curriculum, students should be able to:

- Explain the importance of Business Architecture, how it can be correlated with Enterprise Architecture and help organization realize its strategic intent and objectives
- Learn about various components of the Business Architecture and its relationship with Enterprise Architecture
- Describe the core concepts and components of the popular Business Architecture frameworks
- Learn about digital reference models for Business Architecture
- Gain more understanding about different business modeling techniques, capability-based modeling
- Get more insights into measurement framework and balance scorecard measures
- Have increased decision-making ability in determining how Business Architecture can bring in agility in business and IT execution
- Know how to establish and manage the Business Architecture as part of Enterprise Architecture Office
- Appreciate the role of a Business Architect and their contribution to Business Architecture functions or practices

The following are suggested topics within the proposed course as part of this model course curriculum.

Introduction to Business Architecture (Curriculum Reference: Topic 1)

Business Architecture as per the TOGAF® Standard is defined as: "*The formalized description of how an organization uses its essential competencies for realizing its strategic intent and objectives*" [C220].

Business Architecture is the discipline that demonstrates how key organizational elements – people, process, information, applications, etc., work together to define an enterprise. Understanding these relationships helps an organization to identify areas of opportunity, develop roadmaps for evolution, and ultimately connect its strategies with the operation of the business. In the business sector, Business Architecture is a discipline that "*represents holistic, multidimensional business views of capabilities, end-to-end value delivery, information, and organizational structure; and the relationships among these business views and strategies, products, policies, initiatives, and stakeholders*" [C220]. In application, Business Architecture provides a bridge between an enterprise business model and enterprise strategy on one side, and the business functionality of the enterprise on the other side.

A Business Architect represents the business and its needs. Unlike IT Architects, Business Architects do not practice Data, Application, or Technical Architecture. It provides solutions from a business lens, establishing strategy alignment, which may be technology-enabled.

Difference Between Business Architecture and Enterprise Architecture (Curriculum Reference: Topic 1, Item 1.1)

A high-level representation of how Enterprise Architecture encompasses Business Architecture is shown in Figure 3.

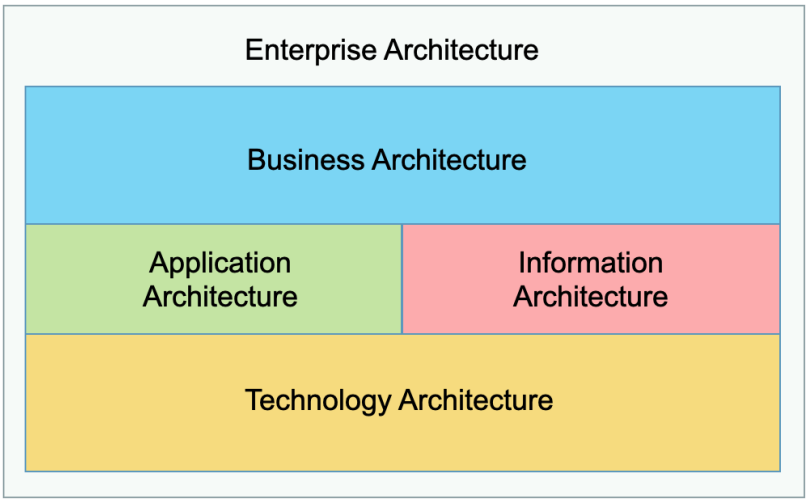

Figure 3: Business Architecture and Enterprise Architecture, as per the TOGAF Standard

While at times the terms Enterprise Architecture and Business Architecture are used interchangeably, Business Architecture is a component of Enterprise Architecture and provides the foundation for the other domains within the Enterprise Architecture. Business Architecture is one of four architecture domains in The Open Group Architecture Framework which is for Enterprise Architecture. The TOGAF Standard Business

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Architecture defines an organization's business strategy, governance, organization, and key business processes. It focuses on the organization's business strategy, goals, processes, and stakeholders.

Enterprise Architecture

Enterprise Architecture, as the name suggests, is a process to provide a holistic, top-down view of structure and systems and align business strategic vision with its IT. It simply improves organizational impacts through productivity, agility, product and service timelines, revenue growth, and cost reduction. The primary goal of Enterprise Architecture is to provide a roadmap for organizational redesign and change.

Business Architecture

Business Architecture, as the name suggests, is a process to analyze the operation of existing business functions so that if there is any issue it can be improved, or a new business function developed with a strong focus on processes and technology. It is all about business solutions and organization changes to deliver business objectives. Business Architecture does not just define the outcome, Business Architecture helps to realize the outcomes.

The primary goal of Enterprise Architecture is to provide a roadmap for organizational redesign and change. On the other hand, Business Architecture is a blueprint providing a structured, model-driven approach to building and managing an organization.

Table 2: Differences between Enterprise Architecture and Business Architecture[1]

Enterprise Architecture	Business Architecture
It refers to a discipline for proactively and holistically leading enterprise responses to disruptive forces by identifying and analyzing the execution of change toward desired business vision and outcomes. It delivers value by presenting business and IT leaders with signature-ready recommendations for adjusting policies and projects to achieve targeted business outcomes that capitalize on relevant biusiness disuptions.	It refers to how an organization is structured and can clearly depicts, multidimensional business views or elements such as business models, services, capabilities, processes, organization structure, and information fit together.
Its main purpose is to provide the framework, tools, and perspectives to take the business from its current position to a desired position.	Its main purpose is to ensure that all implementation, changes, and enhancements to business processes and functions are in support of and traceable to business strategy.
It is all about designing the business infrastructure and organizational structure on the basis of vision, function, and strategic intent.	It is all about planning, coordinating, and implementing organization business objectives.
It reduces redundancy, complexity, information silos, and business risk associated with IT investments, etc.	It reduces process cycle times, reduce operational costs, improve performance, etc.
It helps to develop the organization's system and processes with a focus on business strategy.	It helps in the smooth functioning of various units of organization, both inside and outside the enterprise.
Responsibilities of the Enterprise Architect include overseeing, improving, and upgrading enterprise services, software and hardware, develop data modules, and provide guidance for new users about how to install, etc.	Responsibilities of the Business Architect include clarifying the company purpose or goals, assisting department leaders to ensure resources are allocated as necessary, planning, and improving for optimizing business, etc.

Evolution of Business Architecture (Curriculum Reference: Topic 1, Item 1.2)

The history of Business Architecture has its origins in the 1980s. In the previous decades, Business Architecture has developed into a discipline of "cross-organizational design of the business as a whole",[2] closely related to Enterprise Architecture. The concept of Business Architecture has been proposed as a blueprint of the enterprise, as a business strategy, and as the representation of a business design.

It was introduced in the 1980s as an architectural domain and as an activity of business design. By the end of the 2000s, the first handbooks on Business Architecture were published, separate frameworks for Business Architecture were being developed, separate views and models for Business Architecture were further under

[1] Refer to: https://www.geeksforgeeks.org/difference-between-enterprise-architecture-and-business-architecture/.

[2] Refer to: https://en.wikipedia.org/wiki/History_of_business_architecture.

construction, the Business Architect as a profession was evolved, and more businesses added Business Architecture to their agenda.

By 2015, Business Architecture has evolved into a common practice. The Business Architecture body of knowledge has been developed and is updated multiple times each year, and the interest from the academic world and from top management is growing.

Over the years, many different definitions of Business Architecture have been proposed, some of the more notable definitions have described Business Architecture as:

- "A blueprint of the enterprise that provides a common understanding of the organization and is used to align strategic objectives and tactical demands" – Object Management Group® (OMG®) Business Architecture Working Group, 2008[3]
- "The business strategy, governance, organization, and key business processes information, as well as the interaction between these concepts" [G091]
- "The formal representation and active management of business design" [SOA Consortium]

Popular Business Architecture Frameworks (Curriculum Reference: Topic 1, Item 1.3)

The Business Architecture Center of Excellence™ (BACOE™) Business Architecture Framework defines the organization of structures and components within an architecture. Business Architecture frameworks come up with the multiple elements required for an organization to define Business Architecture. It provides standards, processes, and rules and a set of supporting tools – for developing a Business Architecture.

The most common architecture frameworks that are most used are listed below and there are both open-source (*) and paid versions (**) for some of them:

- The TOGAF Architecture Development Method (ADM)*
- The Zachman Framework for Enterprise Architecture*
- Gartner® – Enterprise Architecture Method**
- Federal Enterprise Architecture Framework (FEAF)**
- Department of Defense Architecture Framework (DoDAF)**
- Australian Government Architecture (AGA)**
- SABSA® Institute – Enterprise Security Architecture*
- Business Architecture Body of Knowledge (BizBoK®)**

[3] Refer to: https://en.wikipedia.org/wiki/OMG_Business_Architecture_Special_Interest_Group.

- NIST® Enterprise Architecture Model**
- Framework for Enterprise Modeling [ISO 19439]**

Business Architecture

The TOGAF Standard, created and owned by The Open Group, presents one of the most common framework structures in business today. The TOGAF framework:

- Accounts for over 80% of the entire business framework structure
- Contains all the pieces needed for a powerful framework – it has a common vocabulary to use, recommended standards and compliance methods, suggested software and tools, and even a method to define best practices
- Is as much an engine as a framework
- Is often viewed more as an overarching process – the details and methods contained within the TOGAF Standard help guide businesses through any step of business organization

The Zachman Framework

The Zachman Framework uses the method of taxonomy to organize a massive variety of documents and materials into categories that suit them. The Zachman Framework goes beyond IT, it offers structural connections into any aspect of an enterprise. The focus being data, function, network, people, time, and motivation. The perspectives are planner, owner, designer, builder, subcontractor, and enterprise.

Gartner

Gartner implements the idea of combining business owners, information specialists, and technology implementors into a single unified entity. Instead of creating webs of a framework or a singular process, Gartner relies on a constant re-correction that allows the three core entities to tackle any oncoming problem.

The FEAF

The FEAF combines the best of both the Zachman Framework and the TOGAF Standard:

- The FEAF has five reference models that cover business, service, components, technical, and data, where these five points combine with a segment model to create a perspective on how best to install Enterprise Architecture
- The segment model at its core allows a distinction of any number of organizations and connections
- The FEAF was the foundation for a massive restructuring of a high-end government

As such, the framework provides a strong core to follow when building a strong foundation for a future company.

Value Benefits of Business Architecture (Curriculum Reference: Topic 1, Item 1.4)

The purpose of the Business Architecture practice is to resolve the challenges occurring during Enterprise transformation and smaller change initiatives. Some of the key benefits include:

- Enables a link from strategy to execution by focusing on the business capabilities required to get to the future state
- A strong means for communicating business strategy and needs to all managerial levels and disciplines
- Consistent communication of the holistic and traceable understanding of how elements fit together in business domains
- A means to mitigate risks through a transparent view of both the inter-dependencies between business entities and the vertical view between strategy and operations
- Stewardship of understanding business implications caused by substantial changes in technology and/or environmental aspects
- Increased operational efficiency and capacity for growth

  Business Architecture helps an organization to rethink how it structures and streamlines business operations for efficiency and scalability.

- Agility in business and IT execution

  A repository of reusable architecture content and defined processes that translate strategies into execution greatly accelerate an organization's ability to identify and implement the necessary changes.

Emerging Trends in Business Architecture (Curriculum Reference: Topic 1, Item 1.5)

These are some of the emerging trends in Business Architecture. It is important to stay updated with the latest developments in the field to effectively adapt to the changing business landscape.

Agile Business Architecture

Agile approaches, which originated in software development, are increasingly being used in Business Architecture. To better respond to constantly changing business demands, this method emphasizes flexibility, adaptability, and iterative development.

Digital Transformation

With the rising digitization of enterprises, the role of Business Architecture in driving Digital Transformation projects has become critical. Company architecture assists organizations in aligning their digital initiatives with their overall company goals, and in integrating new technology and procedures.

Customer-Centric Approach

Business Architecture is becoming increasingly customer-centric, with an emphasis on understanding consumer demands, preferences, and behaviors. This helps companies to design their processes, goods, and services to provide exceptional customer experiences and strengthen customer connections.

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Ecosystem Thinking

Business Architecture looks beyond individual organizations and into the larger business environment. Understanding the interdependence, partnerships, and collaboration among diverse stakeholders, as well as building designs that may effectively exploit ecosystem capabilities, are required.

Data-Driven Decision-Making

As the value of data grows, Business Architecture is incorporating data analytics and insights into decision-making processes. This involves using data to find opportunities, optimize processes, and monitor performance, all of which leads to better informed and effective decision-making.

Business Architecture as a Service

With the increasing complexity of business environments, some organizations are exploring the idea of outsourcing Business Architecture capabilities to specialized service providers. This allows businesses to leverage external expertise, gain fresh perspectives, and enhance their agility in responding to market dynamics.

Integration of Artificial Intelligence (AI)

AI technologies are being integrated into Business Architecture practices to automate certain tasks, analyze large volumes of data, and provide intelligent recommendations. This integration enhances the efficiency and effectiveness of Business Architecture processes, enabling organizations to make better-informed decisions.

Sustainability and Corporate Social Responsibility (CSR)

There is a growing emphasis on incorporating sustainability and CSR considerations into Business Architecture. This involves designing architectures that support environmentally friendly practices, social responsibility initiatives, and ethical business conduct, aligning the organization with the broader goals of sustainability and social impact.

Business Architecture Foundation (Curriculum Reference: Topic 2)

This section addresses the starting point for all Business Architectures. To be able to draw up a Business Architecture for a firm it is important to clearly understand the firm's motivation and strategy to achieve its motivation and its business model (how it makes money or creates value). These three elements form the foundation on which the Business Architecture can be built. The three elements are detailed below, and Business Architects must leverage techniques to map this out.

Business Strategy (Curriculum Reference: Topic 2, Item 2.1)

In the TOGAF Standard, business strategy refers to the development and implementation of a high-level plan to achieve specific business goals and objectives which are in alignment with the business motivation. The business motivation is often encompassed in the organization's vision, mission, and values.

The structured approach to develop a business strategy includes identifying business goals, assessing the current state of the organization, analyzing external factors such as market trends and competition, and developing a plan to achieve the goals. The plan should include specific objectives, timelines, and metrics for measuring progress.

Within the context of business strategy, one of the approaches is to identify Above the Line (ATL) and Below the Line (BTL) strategies. The former is focused on delivering value to customers and are typically customer-facing, while the latter is focused on optimizing internal processes and reducing costs. They are typically not customer-facing and involve activities such as supply chain management, procurement, and IT infrastructure. These strategies aim to increase efficiency, reduce waste, and optimize resource utilization.

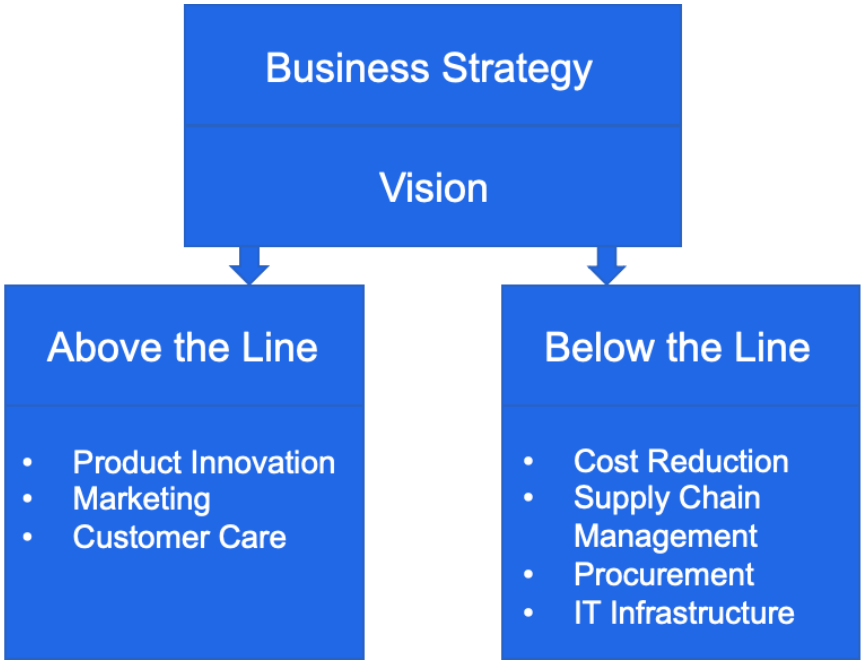

Figure 4: Business Strategy

ATL Strategy

The ATL strategy refers to the strategic level of architecture planning that deals with high-level business objectives, goals, and strategies. It is called ATL because it is concerned with the "big picture" and is not focused on the technical details or implementation.

- New marketplaces

  Refers to emerging markets or industries that are experiencing significant growth and disruption, such as e-commerce, online marketplaces, and digital platforms.

- Beyond Existing Demand

  An ATL strategy is a marketing standard for business that focuses on identifying and pursuing new opportunities beyond the existing customer base, which involves researching and understanding emerging customer needs and trends, developing new products or services that address those needs, and expanding into new markets.

BTL Strategy

The BTL strategy is a marketing standard that focuses on reducing costs, improving efficiency, and optimizing existing processes and resources within an organization. It involves identifying and addressing operational inefficiencies, streamlining processes, and leveraging existing capabilities to reduce costs and improve overall performance. The primary goal of BTL strategy is to increase profitability and competitiveness by optimizing the use of existing resources and capabilities.

Building Execution into Strategy

It focuses on ensuring that strategic goals are effectively executed by aligning resources and capabilities with the overall strategy. This strategy involves identifying key operational inefficiencies and implementing changes to optimize resources, streamline processes, and improve overall performance.

The steps for building execution into strategy:

- Align resources with strategy

  Identify the key resources required to execute the strategy and ensure they are aligned with the overall strategic goals of the organization.

- Streamline processes

  Identify areas of inefficiency in existing processes and make changes to streamline them, optimizing resources and improving overall performance.

- Invest in new technologies

  Identify new technologies that can help improve operational efficiency and invest in them where necessary to support the execution of the strategy.

- Reorganize departments or teams

  Assess the current organizational structure and reorganize departments or teams where necessary to better align with the strategic goals of the organization.

- Establish clear communication channels

  Establish clear communication channels to ensure that everyone within the organization is aligned with the overall strategy and is working toward common goals.

- Implement performance metrics

  Implement performance metrics to monitor progress and identify areas for improvement, ensuring that the organization is executing the strategy effectively.

Getting the Strategy Sequence Right

It is a key component of the BTL strategy, which involves ensuring that the sequence of activities required to execute the strategy is properly aligned and sequenced in the correct order. This strategy is focused on optimizing the execution of the strategy through the careful planning and sequencing of activities.

To implement this strategy effectively, organizations must take the following steps:

- Define the strategic objectives

  Clearly define the strategic objectives and goals of the organization, ensuring that they are Specific, Measurable, Achievable, Relevant, and Time-Bound (SMART).

- Identify the key activities

  Identify the key activities required to achieve the strategic objectives, ensuring that they are sequenced in the correct order to optimize execution.

- Allocate resources

  Allocate the necessary resources required to execute each activity, ensuring that they are aligned with the strategic objectives and goals.

- Establish timelines

  Establish timelines for each activity and ensure that they are realistic and achievable within the allocated resources.

- Monitor progress

  Continuously monitor progress towards achieving the strategic objectives, adjusting the sequence of activities as necessary to optimize execution.

While this is one approach, other traditional approaches to building or understanding strategy can be leveraged. Some of these are given below:

- Customer journey mapping

  This involves mapping out the various touchpoints that a customer has with a business, and identifying areas where the customer experience can be improved.

- Scenario planning

  This involves developing a range of possible scenarios for how a business might evolve in the future and planning accordingly.

- Business process modeling

  This involves mapping out the various processes that a business undertakes to create value and identifying areas where improvements can be made.

- Lean start-up methodology

  This involves developing a business model that is focused on rapid experimentation, iteration, and learning, with the goal of quickly validating or invalidating key assumptions about the business.

- Blue Ocean strategy

  This involves developing a business model that seeks to create new market space by offering a unique value proposition that is not currently offered by any existing competitors.

Business Modeling (Curriculum Reference: Topic 2, Item 2.2)

Business models describe the rationale of how an organization creates, delivers, and captures value. Business models provide a powerful construct to help focus and align an organization around its strategic vision and execution.[4]

Business modeling is the process of creating a detailed representation of a business and its operations. It involves identifying the key elements of the business, such as its products or services, customers, revenue streams, and costs, and analyzing how these elements interact to create value for the business.

Business model artifacts are used to:

- Provide a common understanding of what the organization is, or looks like today
- Portray what it intends to become in the future

Typically, any business/organization can be modeled in three element formats namely for any capability:

- Operating Model (Creation Element)
- Financial Model (Capture Element)
- Customer Experience (Delivery Element)

[4] Refer to: https://www.businessarchitectureguild.org/mpage/StrategicVision.

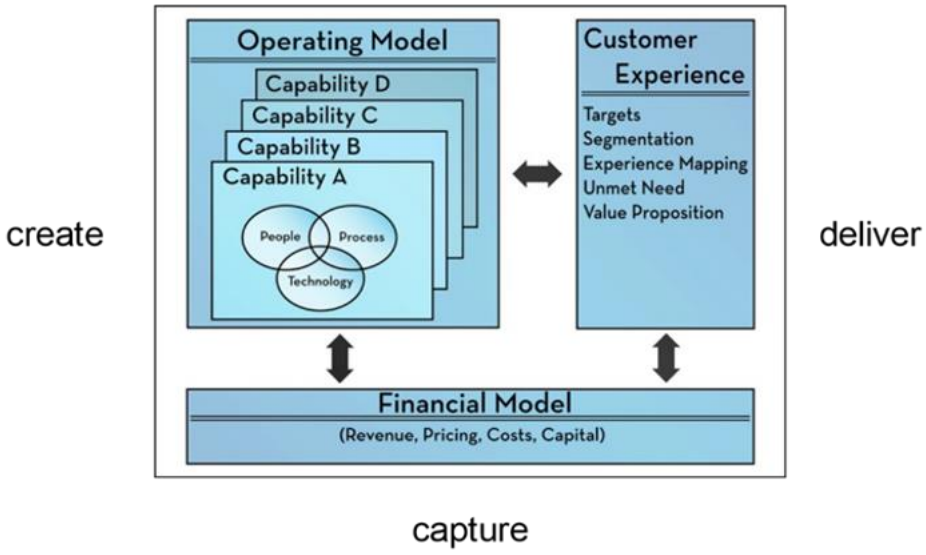

Figure 5: The Business Innovation Factory (Source: Kaplan, 2012)

A common approach to understanding the business model is the use the Business Model Canvas™ (strategic management template used for developing new business models and documenting existing ones) template that captures the following elements:

- Key partners
- Key activities
- Key resources
- Value propositions
- Customer relations
- Customer segments
- Channels
- Cost structure
- Revenue streams

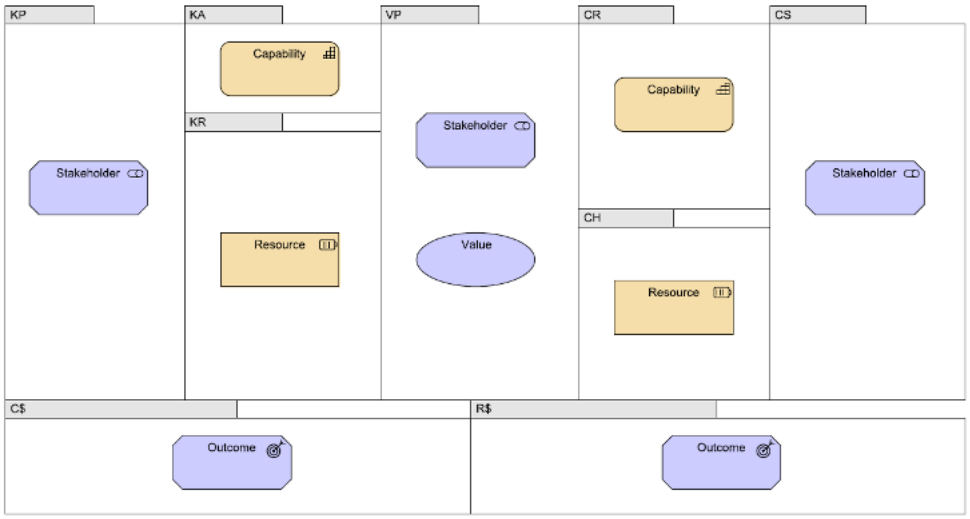

Figure 6: Business Model Canvas

Activity Models (also called Business Process Models) describe the functions associated with the enterprise's business activities, the data and/or information exchanged between activities (internal exchanges), and the data and/or information exchanged with other activities that are outside the scope of the model (external exchanges).

Use-case models can describe either business processes or systems functions, depending on the focus of the modeling effort. A use-case model describes the business processes of an enterprise in terms of use-cases and actors corresponding to business processes and organizational participants (people, organizations, etc.). The use-case model is described in use-case diagrams and use-case specifications.

An elaboration is provided in the section "Business Modeling".

Business Motivation (Curriculum Reference: Topic 2, Item 2.3)

Business motivation in the context of a Business Architecture is defined as the reasons that underline the design and change of some Business Architecture. They influence, guide, and constrain the Business Architecture.

The factors that influence the business motivation is the stakeholder (an individual or an organization that represents their interest in the effects of the architecture), a business driver (a condition that motivates an organization to define its goals and implement the changes necessary to achieve them), and an assessment (the result of an analysis of the state of affairs of the business with respect to some business driver).

The motivation of an organization or individual to achieve certain results is represented by goals (a goal can represent anything a stakeholder may desire; e.g., "Improve Profitability of Service Offering"), principles (normative guidelines that guide the design of all possible solutions in each context), requirements (represent formal statements of need, expressed by stakeholders, which must be met by the architecture or solutions), constraints, goals (that a stakeholder wants to realize a certain outcome; e.g., increase customer satisfaction by 10%), and outcomes (the end results realized by capabilities that realize these goals).

The motivational aspects of the business can be modeled using notations such as Business Process Modeling and Notation™ (BPMN™), Business Motivation Model (BMM) (a specification by the OMG) or ArchiMate® modeling language.

Digital Business Reference Models (Curriculum Reference: Topic 2, Item 2.4)

Reference models are intended to be industry focused-independent and outline common core components that are essential building blocks for consideration by organizations of all sizes, sectors, and development stages to enable consistent organization.

The TOGAF Digital Business Reference Model (DBRM) [G21H] is one of the relevant business models in the context of Business Architecture.

The TOGAF DBRM embodies the key element that makes up the personality of the enterprise, that when addressed collectively, consistently, and in an integrated manner will enable enterprises of all sizes, types, and industries to respond to the changing business environment.

The DBRM consists of ten core elements categorized into four domains:

- Digital Domain
  - Customer Focus
  - Digital Enterprise
- Strategy Domain
  - Strategic Context
  - Business Motivation
  - Business Services and Products
- Structural Domain
  - Ecosystem and Business Model
  - Operating Model
  - Business Capability Model
- Operational Domain
  - Business Operating Environment
  - Digital Enablement

Business Architecture Framework (Curriculum Reference: Topic 3)

A Business Architecture framework is a framework for organizing and comprehending business, information, and technological patterns, as well as how they interact to achieve strategic and tactical objectives.

The company strategy, governance, organization, and critical business processes are all defined by Business Architecture. Business Architects are those who create and manage Business Architecture. Business Architecture is largely concerned with the business motives, business processes, and business analytic frameworks, as well as the related networks that connect these components of the firm. Below are some of the core concepts of the framework [C220].

Taxonomy and Core Concepts (Curriculum Reference: Topic 3, Item 3.1)

View

A view in the context of Business Architecture is a depiction of a certain element or perspective of an organization. A perspective is a way of comprehending the many components, interactions, and dependencies that exist within a specific domain or business sector. Views are used to convey the architecture to shareholders, as well as to enable analysis and decision-making.

Views are used in Business Architecture to represent various characteristics or perspectives of an organization. Depending on the goal and scope of the architecture, many types of perspectives might be employed. Views that are commonly used in Business Architecture include:

- Capability View

  This view represents the organization's core capabilities, including its resources, processes, and skills. It gives a thorough grasp of the organization's ability to create value to its customers/consumers.

- Value Stream View

  This view focuses on the entire process of providing value to clients, from the initial concept of final delivery. It includes all the activities, functions, and processes involved in creating and delivering products or services.

- Information View

  This view represents the organization's data and information assets, including their structure, flow, and consumption. It reveals how data is acquired, stored, processed, and shared within the organization.

- Organizational View

  This view represents the organization's structure, roles, responsibilities, and relationships. It provides a comprehensive understanding of how the organization is organized and how it operates.

- Product View

  This view represents the organization's products and services, including their qualities, features, and advantages. It provides insights into how the firm develops, advertises, and distributes its product or services.

- Stakeholder View

  This view represents the organization's stakeholders, who include customers, employees, partners, and suppliers. It reveals how the company interacts with its stakeholders and how it satisfies their requirements and expectations.

Business Architecture may give a full and holistic knowledge of the firm by utilizing several sorts of perspectives, allowing stakeholders to make educated decisions and drive strategic initiatives.

Viewpoints

Viewpoints, on the other hand, are the viewpoints or lenses that are used to form a view. The design reflects the unique concerns, interests, and aims of stakeholders.

Viewpoints govern the creation of perspectives, ensuring that the architecture meets the needs and requirements of all stakeholders.

Viewpoints may be classified into various types, namely functional, information, capability, operational, and strategic. Each point of view reflects a different part of the organization and offers a distinct perspective on the architecture.

Artifacts

In a Business Architecture framework, artifacts refer to the documentation and diagrams that are created to capture and communicate the various aspects of the Business Architecture. The following are some examples of common artifacts that may be included in a Business Architecture framework (while they are termed as artifacts they are concepts in themselves which contribute to building a holistic Business Architecture – many of the concepts underlying the artifacts are described below):

- Business Capability Model: represents the organization's capabilities and how they are interconnected
- Value Stream Map: depicts the sequence of operations that a company conducts to provide value to its customers
- Business Process Model: depicts the methods that a company use to achieve its objectives
- Organizational Structure Diagram: depicts the structure of an organization including roles, responsibilities, and reporting lines
- Stakeholder Map: depicts the organization's stakeholders, their relationships, and their interests
- Information Model: depicts how information flows through an organization and how it is stored, processed, and utilized
- Technology Architecture Diagram: depicts the organization's technological infrastructure
- Business Capability Roadmap: explains an organization long-term strategy for creating and upgrading its capabilities

Business Capability

In a Business Architecture framework, a business capability refers to an organization's ability to perform a specific function or set of functions. Business capabilities represent what an organization does, rather than how it does it.

Business capabilities may be viewed as high-level, abstract descriptions of what an organization is capable of. They are often stated in terms of the business outcomes that they enable, such as increased revenue, cost reduction, improved customer happiness, or regulatory compliance.

Marketing, sales, customer service, logistics, supply chain management, human resource management, finance, and risk management are examples of business capabilities. Each of these skills represents a unique aspect of the organization's activities, complete with its own set of procedures, tools, and resources.

A Business Capability Model is a framework for organizing and categorizing the competencies of an organization. It gives a high-level of the organization capabilities, how they are interconnected, and how they serve the broader mission and goals of the business.

Business capabilities are significant in Business Architecture because they give a uniform and standardized means of describing and understanding the organization's activities. They may be used to identify organizational strengths and weaknesses, priorities investments and projects, and match business and IT goals.

Key capability features:

- Capabilities define what is done
- Capabilities have outcomes
- A capability's intent is unique
- A capability can be tangible or intangible

Drafting a Business Capability Map

Business capability maps are typically used to visually represent business capabilities.[5]

Step 1: Determine Business Architecture

- Determine Business Architecture by refining and documenting the capabilities as an organization
- Break them down into subcategories of the existing capabilities as primary and secondary capabilities
  - Look for opportunities to define the semantics and dissolve duplication
- When the capability tree is complete, it is time to start connecting the dots

[5] Refer to: https://www.geeksforgeeks.org/difference-between-enterprise-architecture-and-business-architecture/; https://en.wikipedia.org/wiki/History_of_business_architecture; https://terrafirma.com.au/architecture/top-10-enterprise-architecture-frameworks/.

That is, looking for connection points and using visuals/drawing lines between the business capabilities to show their relationship.

Step 2: Overlay Technical and Business Architecture

Implementing IT in correspondence with business capabilities is an important aspect of the capability mapping process. Discover the technologies you will need and the way to implement them.

Step 3: Capability Mapping to Service Oriented Architecture (SOA)

SOA can be achieved once a capability map is laid out and designed to include technical support and capabilities.

Business Processes

A business process is a defined in a Business Architecture framework as a series of actions and tasks that a company does to accomplish a specified business outcome. Business processes are the "how" of an organization's operations, explaining how work is completed and value is given to customers.

Business processes can range from simple, straightforward tasks to complex, cross-functional workflows that span multiple departments and systems. Order to Cash (O2C), Procure to Pay (P2P), Hire to Retire, client onboarding, and claims processing are all examples of business processes.

Business processes are generally modeled in Business Architecture using process diagrams such as flowcharts, swim lane diagrams, or BPMN diagrams. These diagrams depict the activity sequence, the inputs and outputs of each activity, the decision points, and the interconnections between various roles or departments.

Organizations may acquire a better understanding of how work is completed by modeling business processes and identifying opportunities for improvement and optimization. Process models may also be used to engage with stakeholders, align business, and IT strategies.

In summary, business processes are an essential component of Business Architecture Frameworks because they assist firms in understanding and optimizing their operations, as well as in consistently and efficiently delivering value to consumers.

Business process modeling steps:

- Define the scope

  Identify the business process or system that you want to model and define its boundaries and objectives.

- Identify the stakeholders

  Identify the people, groups, or organizations that are involved or affected by the business process or system.

- Identify the activities

  Identify the tasks, events, or decisions that are part of the business process or system and describe them using BPMN symbols.

- Identify the flows

  Identify the information, resources, or materials that flow between the activities and describe them using BPMN connectors.

- Identify the business rules

  Identify the constraints, policies, or regulations that govern the behaviour of the business process or system and describe them using BPMN annotations.

- Analyse the model

  Validate the correctness, completeness, and consistency of the model and identify areas for improvement or optimization.

- Communicate the model

  Share the model with the stakeholders and solicit their feedback, suggestions, or approvals.

- Implement the model

  Use the model as a basis for designing, implementing, testing, and monitoring the business process or system.

Business Process Taxonomy

The Business Process Classification Framework®, [6] is a taxonomy of cross-functional business processes that enables objective comparison of organizational inside and between organizations and it creates a common language to discuss, benchmark, and organize the work that businesses perform.

Process Classification Framework has five levels (L1 to L5):

- Level 1 – Category

  Represents the highest level and includes 12 categories, such as strategy, operations, and customer service. Each category is further divided into processes. Examples of categories include managing customer service, supply chain, financial organization, and human resources.

- Level 2 – Process Group

  Represents a group of processes that are part of executing a category, and also indicates the next level of processes. For example, the operations category includes process groups such as supply chain management and production. Other examples of process groups include performing after-sales repairs, procurement, accounts payable, recruiting/sourcing, and developing sales strategies.

[6] Refer to: https://www.apqc.org/process-frameworks.

- Level 3 – Process

  Represents a subsequent stage of decomposition following a process group. It encompasses not only the essential elements required to execute the process, but also incorporates components pertaining to variations and rework. For example, the supply chain management process group could include processes such as demand planning and inventory management.

- Level 4 – Activity

  This is the lowest level in the PCF and represents the specific activities or tasks that make up a process. For example, activities like receiving custom requests, resolving custom complaints, and negotiating purchasing contracts.

- Level 5 – Task

  Represents the next level of hierarchical decomposition after activities. Tasks are more fine-grained and vary widely across industries. Examples include creating a business case, obtaining funding, and designing recognition and reward approaches.

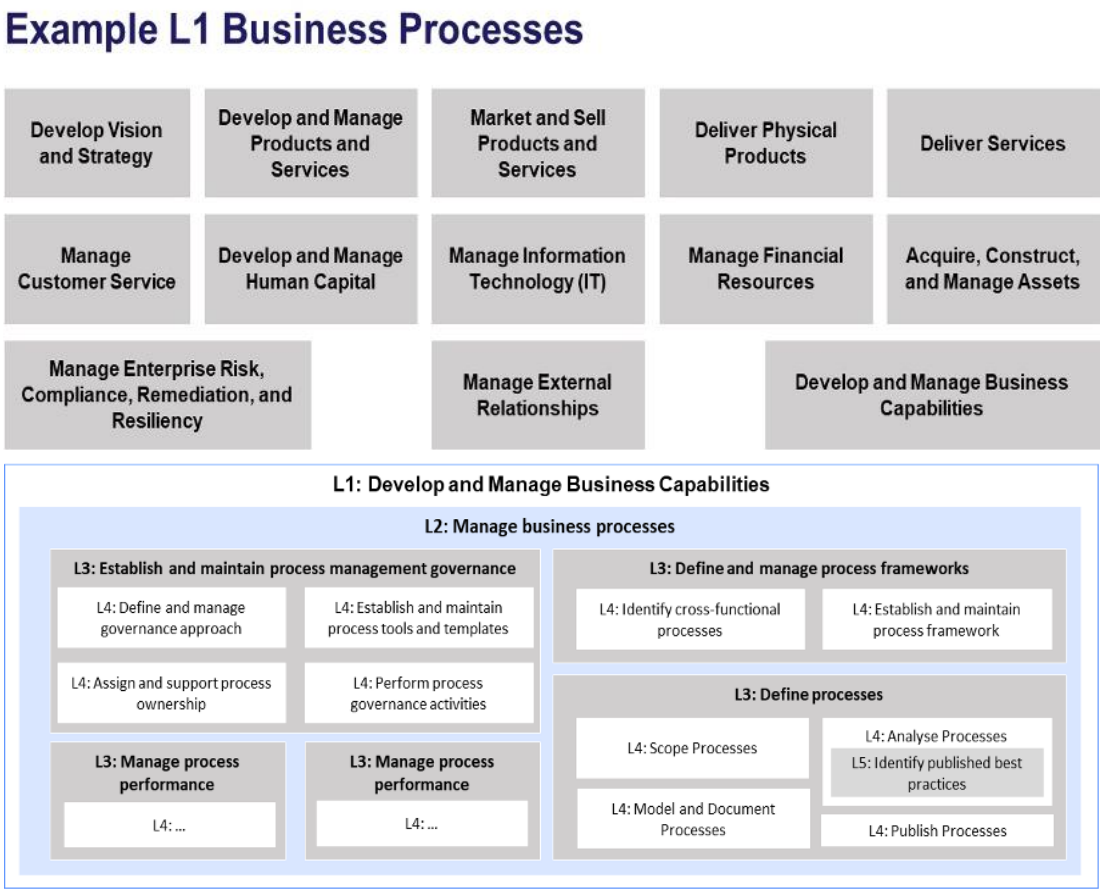

Figure 7: Business Processes Classification Levels

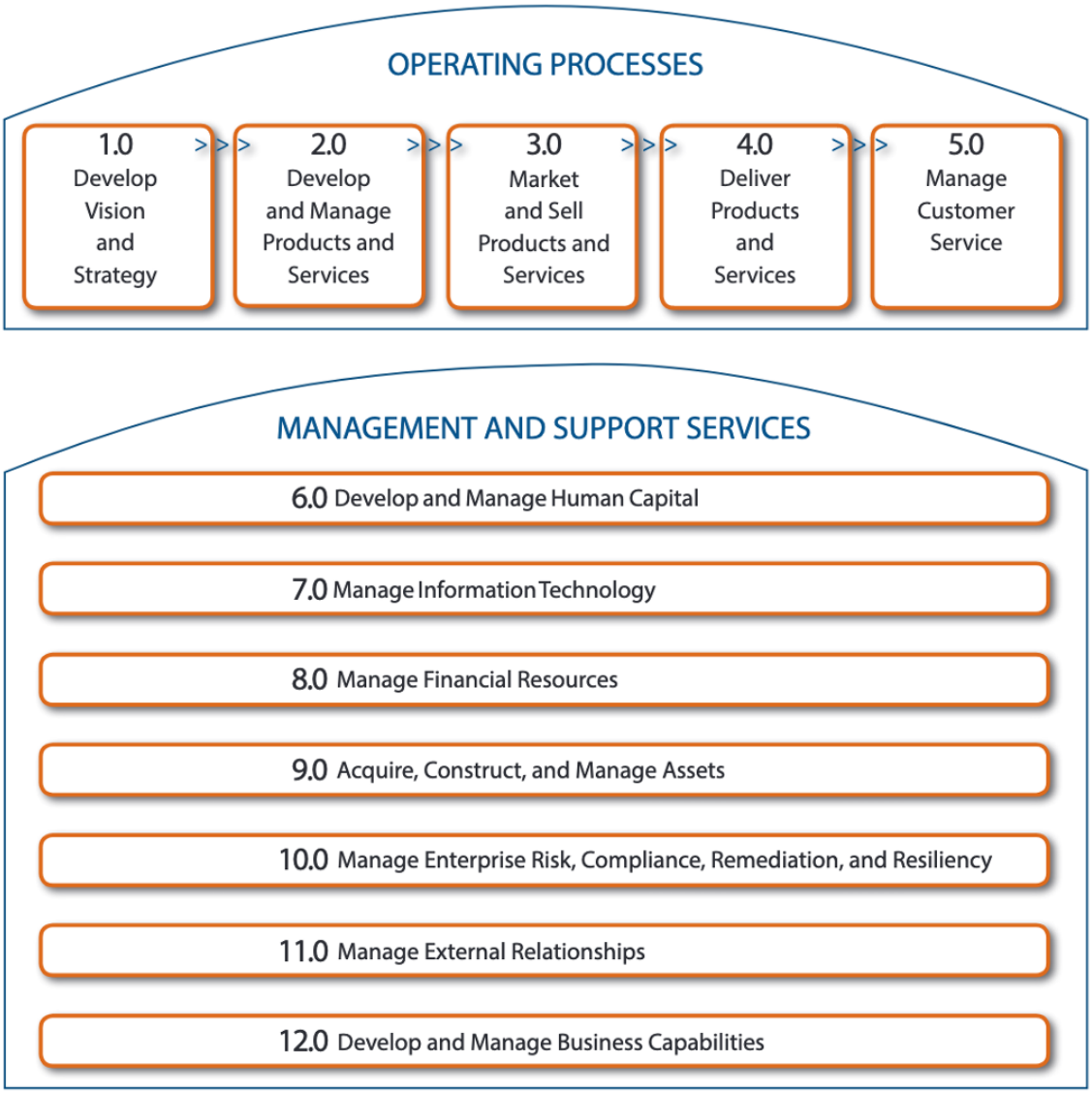

Figure 8: Business Process Maturity Model (BPMN) (Source: APQC)

Figure 8 includes the levels of business processes, from L0 to L6. An organization's business processes' maturity and efficacy are evaluated using the BPMM framework. Higher levels denote greater process excellence and integration. Each level reflects a degree of process maturity. An overview of the various levels is provided below:

- Level 0

  Chaotic processes at this level, the organization lacks well defined processes. *Ad hoc*, unstructured work is heavily reliant on the knowledge and abilities of each worker. Process standardization and documentation are little to non-existent, which results in uneven results and inefficiencies.

- Level 1

  Beginning procedures basic processes begin to form at this level, although they are frequently ill-defined, inconsistent, and incomplete. Organizations rely primarily on informal practises and human decision-making, and there is little documentation of processes. Processes lack a strategic focus and are reactive.

- Level 2

  Managed processes at this level, processes are documented, and some level of management and control is established. Basic metrics are used to monitor process performance, and efforts are made to standardize processes across the organization. However, there is still room for improvement in terms of consistency and effectiveness.

- Level 3

  Standardized processes at this level, processes are well-defined, documented, and standardized throughout the organization. There is a focus on process repeatability and consistency. Best practices are identified and implemented, and metrics are used to monitor and control process performance. Process ownership and governance are established.

- Level 4

  Predictable processes at this level, organizations have achieved a high level of process maturity. Processes are not only standardized but also optimized for efficiency and effectiveness. Performance targets are set and consistently met or exceeded. Organizations use advanced tools and techniques to analyze and improve processes continuously.

- Level 5

  Innovating processes at this level, organizations have a culture of continuous improvement and innovation. Processes are Agile, flexible, and adaptable to changing business needs. There is a strong emphasis on leveraging emerging technologies and exploring new opportunities for process optimization and innovation.

- Level 6

  Optimized processes at this level, this an aspirational level that represents the highest level of process excellence. At this stage, organizations have achieved a state of near perfection in their processes. They have integrated and automated systems, advanced analytics, and real-time monitoring to drive operational excellence and deliver superior business outcomes.

It is important to note that reaching higher levels of process maturity requires a systematic approach, dedicated effort, and a commitment to ongoing improvement. Organizations may progress through these levels gradually, with each level building upon the accomplishments of the previous one.

Value Streams (Curriculum Reference: Topic 3, Item 3.2)

Value is the foundation of a firm's business model, which describes the rationale for how a business creates, delivers, and captures value. The approach to value analysis that is used in Business Architecture is derived from James Martin's *Great Transition: Using the Seven Disciplines of Enterprise Engineering* [Martin, 1995]. The value stream is an end-to-end collection of value-adding activities that create an overall result for

a customer, stakeholder, or end-user. In modeling terms, those value-adding activities are represented by value stream stages, each of which creates and adds incremental stakeholder value from one stage to the next.

A key principle of value streams is that value is always defined from the perspective of the stakeholder – the customer, end-user, or recipient of the product, service, or deliverable produced by the work.

As part of the practice of Business Architecture, we separate the concern of what we do (business capability), from who does it (organization), from how value is achieved (value stream), from how it is implemented or performed at an operational level (process), from the information that is needed, and from the systems that are used.

The value stream has a direct linkage to an organization's business model (specifically to the value proposition). As an organization translates its business model to an operating model, those value stream stages can be translated into business processes.

Another way to think about the relationship between value streams and business processes is to consider their viewpoint: value streams take an outside-in perspective, usually a customer or end-user, and show how value gets created and moved around in relation to that stakeholder only. Business processes, on the other hand, tend to have more of an inward-looking, operational-level focus that is primarily concerned with how work gets done – the operational implementation.

It is important to note that value streams are typically composed of multiple business processes, as defined above – which in turn are composed of business capabilities.

Benefits of Value Streams and Value Stream Mapping

Mapping value streams is a quick and easy way to obtain a snapshot of the entire business, as:

- Value streams help business leaders envision and prioritize the impact of strategic plans, manage internal and external stakeholder engagement, and deploy new business solutions
- Viewing business capabilities through the lens of a value stream provides a value-based, customer-centric context for business analysis and planning
- Value streams provide a framework for more effective business requirements analysis, case management, and solution design

Value Stream Description, Decomposition, and Mapping (Curriculum Reference: Topic 3, Item 3.3)

Mapping value stream stages to their respective enabling business capabilities provides a much richer level of understanding about what a business should be focusing on.

Describing a Value Stream

Value streams are defined using four standard elements:

- Name

  The value stream name must be clearly understandable from the initiating stakeholder's perspective; e.g., Lead to Quote, Lead to Cash.

- Description

  While the value stream name should be self-explanatory, a short, precise description can provide additional clarity on the scope of activities that the value stream deals with.

- Stakeholder

  The person or role that initiates or triggers the value stream.

- Value

  The value (expressed in stakeholder terms) that the stakeholder expects to receive upon successful completion of the value stream. That value is an aggregation of the incremental value items that are delivered by each value stream stage.

Decomposing a Value Stream

Value is achieved through a series of sequential and/or parallel actions, or value stream stages, that incrementally create and add stakeholder value from one stage to the next.

Each value stream stage comprises the following elements:

- Name

  Two to three words identifying what is (or will be) achieved by this stage.

- Description

  A few sentences explaining the purpose and the activities performed during the value stream stage.

- Stakeholders

  Actors who receive measurable value from the value stream stage, or who contribute to creating or delivering that value.

- Entrance criteria

  The starting condition or state change that either triggers the value stream stage or enables it to be activated.

- Exit criteria

  The end state condition that denotes the completion of the value stream stage; i.e., when the required value has been created or delivered to the stakeholders. This information becomes the entry criteria for the next value stream stage.

- Value item

  The incremental value that is created or delivered to the participating stakeholder(s) by the value stream stage.

Mapping Capabilities to Value Stream Stages

Having defined the end-to-end value stream, the next step is to identify which business capabilities are required to enable each value stream stage. This is done by reviewing the business capability map, and linking (i.e., cross-mapping) the relevant business capabilities to each value stream stage.

Approach to Creating Value Streams

Value streams provide valuable stakeholder context into why we need business capabilities, while business capabilities demonstrate what we need for a particular value stream to be successful.

Guiding principles:

- There must be a clearly defined triggering stakeholder
- Start with external (usually customer-based) value streams

  These value streams help to frame the range of possible internally focused value streams.
- Value streams are not capabilities, nor components of capabilities

  Value streams and value stream stages help to inform and validate the business capability model, and *vice versa*.
- Keep it concise

  Creating value streams and mapping them to business capabilities should not require going down to operational levels of detail. That is normally the domain of business process design. An operational level of detail can be derived from the value streams, but that detail does not usually provide the overall, end-to-end perspective that is needed for strategy-level discussions and analysis.

Value and Value Realizations

Organizations these days are investing heavily to improve their operational efficiencies. To realize the value of the investment, there should be a mechanism/framework to measure the success of their transformational journey. This is where value realization comes into the picture which defines the value holistically through financial and non-financial measures.

Value realization is the ability to measure the impact and Return on Investment (ROI) derived from the implementation of a product or a service to solve a business problem or enhance the business capabilities of an enterprise.

Value realization of the business depends on the following metrics:

- Objective

  Enterprise strategies and goals must be clearly identified and should be measurable (ROI, financial metrics, cost offset, number of users, etc.).
- Timeline

  Milestones must be accompanied by a timeline (go-live in six months, one year, etc.), which provides a timeframe for the value realization.

- Outcomes

  Outcomes relating to success and failure must be clearly defined to enable a review at the end of the business value realization period.

- Roles and responsibilities

  Clearly defined set of roles and responsibilities to measure the business value attributed to associated resources.

For the value realization process to be meaningful it must be executed and tracked on a regular basis. The ongoing assessment is important as it gives us an opportunity to learn in the case of a failure, where the business benefits are not met as expected or realized too slowly. An in-depth root cause analysis should be conducted to investigate the reasons for failure and initiate possible corrective actions.

Other Concepts – Business Services, Functions, Roles

Business Service

A business service represents explicitly defined behavior that a business role, business actor, technology or business collaboration exposes to its environment. A business service exposes the functionality of business roles or collaborations to their environment. This functionality is accessed through one or more business interfaces. A business service should provide a unit of behavior that is meaningful from the point of view of the environment. It has a purpose, which states this utility. The environment includes the (behavior of) users from outside as well as inside the organization. Business services can be external, customer-facing services (e.g., a travel insurance service) or internal support services (e.g., a resource management service).

A business service is associated with a value. A business service may serve a business process, business function, or business interaction. A business process, business function, or business interaction may realize a business service. A business interface may be assigned to a business service. A business service may access business objects. The name of a business service should preferably be a verb ending with "-ing"; e.g., transaction processing. Also, a name explicitly containing the word "service" may be used.

Business Function

A business function is defined as a behavior element that groups behavior based on a chosen set of criteria (typically required business resources and/or competences). Just like a business process, a business function also describes internal behavior performed by a business role. However, while a business process group's behavior is based on a sequence or "flow" of activities that is needed to realize a product or service, a business function typically groups behavior based on required business resources, skills, competences, knowledge, etc.

There is a potential many-to-many relation between business processes and business functions. Complex processes in general involve activities that offer various functions. In this sense, a business process forms a string of business functions. In general, a business function delivers added value from a business point of view. Organizational units or applications may coincide with business functions due to their specific grouping of business activities.

A business function may be triggered by, or trigger, any other business behavior element (business event, business process, business function, or business interaction). A business function may access business

objects. A business function may realize one or more business services and may be served by business, application, or technology services. A business role may be assigned to a business function. The name of a business function should clearly indicate a well-defined behavior. Examples are customer management, claims administration, member services, recycling, or payment processing.

Business Role

A business role represents the responsibility for performing specific behavior, to which an actor can be assigned, or the part an actor plays in a particular action or event.

Business roles with certain responsibilities or skills are assigned to business processes or business functions. A business actor that is assigned to a business role is responsible for ensuring that the corresponding behavior is carried out, either by performing it or by delegating and managing its performance. In addition to the relation of a business role with behavior, a business role is also useful in a (structural) organizational sense, for instance, in the division of labor within an organization.

A business role may be assigned to one or more business processes or business functions, while a business actor may be assigned to one or more business roles. A business interface or an application interface may serve a business role, while a business interface may be part of a business role. The name of a business role should preferably be a noun; e.g., buyer, seller in industry domains are reference to business roles.

Business Outcomes/Key Performance Indicators (KPIs) (Curriculum Reference: Topic 3, Item 3.4)

The outcomes are founded upon what the Business Architecture delivers. In the Business Architecture deliverables, Gartner suggests that the deliverables should provide:[7]

- An improved strategic clarity and decision-making
- Transparent measurement of business value
- Balanced strategic portfolio
- Visibility into operational and strategic costs

The deliverables will generate further outcomes which will be objective(s), which can be evaluated/assessed by project teams as SMART objectives of the business/initiative.

[7] Refer to: https://www.gartner.com/en/documents/3942046.

While the outcomes are to be identified and achieved, KPIs are implemented for monitoring the effectiveness of objectives. Some approaches to developing KPIs are given below.

- Digital KPIs:
  - Net Promoter Score (NPS)

    This KPI measures the customer loyalty on how likely a customer is to recommend a product or service to others.
  - Operating expenses

    This measures the effect of Digital Transformation on the operating expenses of the business.
  - Revenue and return from digital channels

    This measures the revenue generated from new digital channels, such as a website or mobile app along with identifying the ROI.
  - Data-driven decision-making

    What percentage of new business decisions are based on data from new technology and digital channels. Using data effectively is at the core of effective business transformation, so this metric can help you determine if your investment is truly contributing to the business strategy.
  - Adoption of new business models

    Business model transformation involves changing the way a business operates, and involves adopting faster, simpler models to engage with customers on new levels.
  - Throughput time

    This metric looks at the amount of time it takes to complete a process, from the beginning until it is delivered to the customer.
- IT KPIs:
  - Number of changes in the production plan

    Higher changes implies higher Capital Expenditure (CAPEX) and more frequent changes to the business process.
  - On-time delivery percentage

    Leads to clear vision and future, lesser unplanned expenses, and allows to evaluate the time lost due to changes in plans.
  - Lead time of delivery

    A reduced lead time of delivery enables a faster process improvement and lesser lead time to market for a new product or service.
- Domain KPIs:
  - Customer Lifetime Value (LTV)

This measures the total value of a customer to a company over the lifetime of their relationship. There are different interpretations of this KPI, but a common way to measure LTV is to determine the average gross margin per sale of a product or service, and then calculate the number of times a typical customer buys that product or service.

— Custom Acquisition Rate

This measures the number of new customers acquired over a period. It's particularly helpful to understand the ROI of your lead generation efforts, as it can indicate how many leads are turning into customers or clients.

— Customer Churn Rate

This measures the percentage of customers who stop using a product or service over a period. A high customer churn rate is an indication that something is wrong with the product, service, or company and should be addressed.

Personas, Views, and Viewpoints

The business modeling persona is a specific behavior of a stakeholder in business. Typically, touchpoints between humans with business personas have the following characteristics:

- Demographic
- Psychographics
- Sociographic

Typically, a product company will create a persona to verify and to validate the business model. Like align customer, neutral customer, and competitor user.

In context of business modeling views, they are created based on the model used for business modeling. Like persona, view, and viewpoints are used for describing business model to stakeholder in turn to verify fitness to meeting to goal of business modeling with stakeholder expectations.

Capability-Based Planning (Curriculum Reference: Topic 4)

Capability-based planning is a powerful technique for aligning business strategy with capabilities that drive organizational success. At its core, capability-based planning is a structured approach to identifying, prioritizing, and sequencing key capabilities that enable an organization to achieve its goals and objectives.

Capability-based planning is used within the TOGAF framework to develop a blueprint for an organization's business capabilities. Business capabilities refer to the activities and processes that an organization needs to perform to achieve its strategic objectives. By modeling business capabilities, an organization can identify gaps in its current capabilities and develop a roadmap for developing and implementing new capabilities that will enable it to achieve its strategic goals.

As part of the Business Architecture foundation, the capability based approach in the TOGAF Standard involves breaking down an organization's capabilities into smaller, more manageable components, known as business functions. Each business function represents a specific activity or process that contributes to the overall capability. By analyzing each business function, an organization can identify opportunities for improvement and develop a plan for developing and implementing new capabilities.

As an essential component of Business Architecture, it helps in providing a blueprint for how an organization will achieve its strategic objectives. In depth understanding of the organization's capabilities and how they contribute to business outcomes, capability-based planning enables more effective decision-making, greater agility in responding to change, and better alignment between strategy and execution.

The capability-based planning process consists of several key steps:

- Identify strategic goals and business needs

  The first step in capability-based planning is to identify the strategic goals and business needs that the organization must achieve to be successful. This involves a thorough analysis of the organization's internal and external environments, including Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis and Political, Economic, Social, Technological, Legal, and Environmental (PESTLE) analysis.

- Develop core capabilities

  Based on the identified strategic goals and business needs, the organization must then develop a set of core capabilities that are critical to achieving those goals. Core capabilities are those that are unique to the organization and provide a competitive advantage.

- Establish supporting capabilities

  In addition to core capabilities, the organization must also identify and establish a set of supporting capabilities that enable the core capabilities to function effectively. Supporting capabilities include infrastructure, processes, and technology.

- Establish capability maturity levels

  Once the core and supporting capabilities have been identified, the organization must establish maturity levels for each capability. Capability maturity levels provide a measure of how well a capability is performing, and how it can be improved.

- Create a capability roadmap

  With the maturity levels established, the organization can then create a capability roadmap that defines how each capability will be developed over time. The roadmap should be closely aligned with the organization's strategic goals and business needs.

- Define performance metrics

  The organization must define performance metrics that measure the effectiveness of each capability. These metrics should be closely tied to the organization's strategic goals, business needs, and to track progress and adjust as necessary.

Let's understand this with an example of a company in the healthcare industry that wants to expand its services and enter a new market. The company's strategic objective is to increase revenue and market share by offering specialized healthcare services in the new market. To achieve this objective, the company needs to identify and develop new capabilities. For example, it may need to:

- Build relationships with local healthcare providers
- Establish a strong marketing and sales presence in the new market
- Develop a network of suppliers and vendors to support the new services
- Hire and train specialized staff with the necessary skills and expertise
- Invest in new technology and infrastructure to support the new services

Using capability-based modeling, the company can map out the required capabilities in detail, including the resources, processes, and technology needed to support each one. This provides a clear roadmap for how the company will achieve its strategic objective of entering the new market and offering specialized healthcare services.

By using capability-based planning to identify and develop capabilities, the company can ensure that its strategy is aligned with its overall business goals and that it has the resources and capabilities it needs to succeed in the new market. This is a critical component of Business Architecture, as it helps organizations to translate their strategic objectives into tangible actions and outcomes.

Similarly, capability-based planning has many applications in business strategy and Enterprise Architecture. Some of the key applications include:

- Strategy development

  Capability-based planning provides a structured approach to developing business strategy that is closely aligned with an organization's capabilities. By identifying the core and supporting capabilities that enable the organization to achieve its strategic goals, capability-based planning ensures that strategy is grounded in a realistic understanding of the organization's capabilities.

- Business Transformation

  Capability-based planning is also a valuable tool for managing Business Transformation initiatives. By identifying the capabilities that need to be developed or improved in order to achieve the desired business outcomes, capability-based planning provides a roadmap for transformation efforts that is closely tied to the organization's strategic goals.

- IT planning and management

  Capability-based planning is particularly useful in IT planning and management, where it can be used to identify the capabilities that are required to support IT initiatives. By aligning IT capabilities with business capabilities, capability-based planning ensures that IT investments are focused on delivering business value.

The ArchiMate modeling language can be used to support capability-based planning by providing a set of concepts and notations for visualizing and communicating the relationships between an organization's capabilities, processes, information, and technology.

The ArchiMate modeling language can help to:

- Describe an organization's capabilities and how they support its goals and objectives
- Identify the key business processes that underpin each capability and the information that is required to support these processes
- Map the information and technology infrastructure that supports each capability and process
- Analyze the interdependencies between capabilities, processes, information, and technology, and identify areas where improvements can be made

The ArchiMate modeling language can also be used to develop a more detailed view of the capabilities and processes within an organization, and to identify opportunities for improvement or optimization. This can be done by developing ArchiMate models that represent the current state of the organization, as well as models that represent potential future states based on different scenarios or strategic objectives.

When adopting capability-based planning in a volatile business environment, there are several key considerations that businesses should keep in mind. These include:

- Flexibility

  In a volatile business environment, strategies and objectives may need to change rapidly in response to changing market conditions or other factors. Business should design their capability-based model approach to be flexible and adaptable, allowing for changes to be made quickly and efficiently as needed.

- Risk management

  Capability-based planning should include a risk management component to identify and manage risks associated with the development and implementation of new capabilities. In a volatile business environment, risks may be higher and it is important to have a solid risk management plan in place.

- Agility

  Capability-based planning should be designed to enable Agile development and implementation of new capabilities. This means that the process should be iterative, allowing for rapid prototyping and testing of new capabilities to ensure that they meet the changing needs of the business.

- Collaboration

  Collaboration is critical in a volatile business environment, and business should design their capability-based planning approach to promote collaboration across different teams and departments. This can help to ensure that everyone is working together toward a common goal and that new capabilities are developed and implemented efficiently.

- Continuous improvement

  Capability-based planning should be an ongoing process of continuous improvement, with regular review and refinement of the capabilities being developed. This is particularly important in a volatile business environment, where market conditions and other factors may change rapidly.

Capability-based planning can help in achieving organization's business goals by providing a structured approach to defining, analyzing, and managing their capabilities. It helps them align capabilities with their strategic goals, enabling them to make informed decisions on where to invest resources. With capability-based planning combined with the ArchiMate modeling language, organizations can identify gaps in their capabilities and prioritize initiatives to address them. By continuously monitoring and refining organizational capabilities, they can ensure that organization is Agile and responsive to changing business needs. Overall, capability-based planning can help organizations to build a sustainable competitive advantage by enabling them to optimize resources and deliver value to their customers.

Measurement Framework (Curriculum Reference: Topic 5)

A measurement framework in Business Architecture is a set of standards and practice that are used to define, collect, analyze, and report data related to business activities and outcomes. The framework provides a structured approach to measuring the performance of business processes, systems, and people, and helps organizations to identify areas of improvement.

Perspectives (Curriculum Reference: Topic 5, Item 5.1)

When creating a measuring framework for Business Architecture, there are numerous perspectives that may be employed, including:

- Process perspective

  This perspective focuses on measuring company processes and identifying opportunities for improvement. Cycle time, process efficiency, and process effectiveness are examples of metrics.

- Capability perspective

  This perspective focuses on the measurement of an organization's capabilities, such as its capacity to innovate, adapt to consumer requirements, and execute on its plan. Metrics may include the innovation pipeline, customer happiness, and the success of plan implementation.

- Information perspective

  This perspective focuses on the measurement of information and data utilized by an organization to make choices is the emphasis of this approach. Data quality, data accessibility, and information security are examples of metrics.

- People perspective

  This perspective focuses on the measurement of an organization's workforce, including employee engagement, talent management, and leadership performance, is the emphasis of this perspective. Employee retention, leadership effectiveness, and employee happiness are all possible metrics.

- Value perspective

  This perspective focuses on measuring the value provided by an organization for its stakeholders, which include consumers, workers, and shareholders. Revenue growth, customer loyalty, and ROI are examples of metrics.

Balance Scorecard Measures (Curriculum Reference: Topic 5, Item 5.2)

The balanced scorecard is a management method that aims to translate an organization's strategic goals into a set of organizational performance targets that are then assessed, monitored, and altered as needed to ensure that the strategic goals of the organization are fulfilled.

The balanced scorecard method is based on the notion that the financial accounting indicators that firms have historically used to evaluate their strategic goals are insufficient to keep them on track. Financial reports give light on what has occurred in the past rather than where the organization is or should be heading.

The balanced scorecard approach strives to offer stakeholders with a more comprehensive perspective by supplementing financial indicators with extra metrics that reflect success in areas like as customer happiness and product innovation.

Kaplan and Norton provided guidelines or measures on how to create a balanced scorecard in their 1993 study [Kaplan and Norton]. They described a procedure that applies to business units and offers "a typical project profile" for creating balanced scorecards. It contains the following phases/measures:

- Preparation

  The organization determines which business units require a top-level scorecard. This is a company unit with its own clients, distribution routes, manufacturing facilities, and financial goals.

- The first round of interviews

  A balanced scorecard facilitator conducts 90-minute interviews with senior managers to gather opinion on strategic goals and performance measures.

- First executive workshop

  To begin, top management meets with the facilitator. Creating the scoreboard by agreeing on the mission and strategy and connecting the measurements to them. Video interviews with shareholders and customers may be included.

- The second round of interviews

  The facilitator evaluates, consolidates, and documents the executive workshop feedback and interviews each senior executive to create a preliminary balanced score board.

- The second executive workshop

  The vision, strategy, and provisional scorecard are debated by senior management, their subordinates, and a larger number of intermediate managers. They examine the measures in groups, begin to design an implementation plan, and formulate "stretch objectives for each of the proposed measures".

- The third executive workshop

  Senior executives establish a consensus on the vision, objectives, and metrics developed in the previous two workshops and develop stretch performance targets for each. When this is finished, the team decides on an implementation plan.

- Implementation

  A newly formed team implements a plan aimed at linking performance metrics to databases and IT systems, communicating the balanced scorecard throughout the business, and encouraging the development of second-level metrics for decentralized units.

- Periodic reviews

  Managers develop and review a quarterly or monthly "blue book" of balanced scorecard measures. As part of the strategic planning process, the balanced scorecard measures are reviewed annually.

Alignment from Top to Bottom (Curriculum Reference: Topic 5, Item 5.3)

Measurement framework alignment from top to bottom involves ensuring that all levels of the organization are aligned with the same goals and metrics. Using the below points we can achieve the alignment:

- Organizational goals

  The measurement framework should start with the organization's overall goals. These goals should be clear, specific, and measurable. They should also be aligned with the organization's mission, vision, and values.

- Strategic objectives

  Once the organization goals are established, the next step is to define strategic objectives that will help achieve those goals. These objectives should be specific and measurable, and they should be aligned with the organizational goals.

- KPIs

  KPIs are metrics that are used to track progress towards achieving strategic objectives. Each strategic objective should have set of KPIs that are specific, measurable, and relevant.

By aligning the measurement framework from top to bottom, organizations can ensure that everyone is working towards the same goals and that progress is being tracked consistently across the organization.

Targets, Resourcing, Initiatives, and Budgets (Curriculum Reference: Topic 5, Item 5.4)

Targets are specific levels of performance that an organization aims to achieve for each KPI. Targets should be set based on historical performance, industry benchmarks, and the organization's goals and objectives.

Resourcing is an imperative measurement framework in Business Architecture. It involves ensuring that the organization has the resources needed to measure performance effectively and proficiently. Resource indicators are, for example, people, technology, data, budget, and time.

Initiatives are specific actions that an organization takes to achieve its targets. Each initiative should be linked to a strategic objective, and it should be clear how the initiative will help achieve the objective.

It is an important aspect of the measurement framework in Business Architecture. Budgets provide the necessary funding to support the design, implementation, and management of the measurement framework. Some of the key consideration for budgets are namely: define the scope, establish priorities, estimate costs, develop a budget plan, and monitor and adjust.

Industry Reference Business Architecture with Use-Cases (Curriculum Reference: Topic 6)

Industry reference models simplify the application of Business Architecture to strategy execution. Each model provides a comprehensive representation of a given industry sector and are ready to deploy or be customized as required. From customer experience to risk and compliance management, reference models support the key scenarios and challenges business leaders must solve to create value. The reference models adhere to formal principles and, based on the model, include capability, value stream, stakeholder, information, and organization maps that may be used to align and frame industry requirements and executive priorities with a comprehensive plan for change. The following sections describe some of the leading reference Business Architectures frameworks specific to industries.

Telecom (Curriculum Reference: Topic 6, Item 6.1)

The Business Process Framework, also known as enhanced Telecom Operations Map (eTOM®) is a comprehensive, industry-agreed, multi-layered view of the key business processes required to run an efficient and Agile Digital Enterprise. It provides a common language for use across departments, systems, partners, and suppliers, reducing cost and risk of system implementation, integration, and procurement. It covers the following capabilities at a high level:

- Strategy management
- Capability management
- Business value development
- Operations readiness and support
- Fulfillment
- Assurance
- Billing and revenue management

Use-cases supported by the reference architecture consist of:

- Customer-centric processes including activities such as handling information requests, new sale, billing and invoice generation, or problem and complaint handling
- Network processes including activities such as order handling, trouble ticket management, billing, capacity management, and service lifecycle management
- Product processes including activities such as product development, launch, retirement, etc.

Commercial Aviation (Curriculum Reference: Topic 6, Item 6.2)

Commercial aviation reference architecture can be used to provide a common taxonomy and basis for Enterprise Architecture for the Commercial Aviation Industry. It covers the following capabilities:

- Network and alliances
- Brand and marketing
- Product
- Sales
- Customer and loyalty
- Revenue management and pricing
- Ground operations
- Flight operations
- Cargo
- Maintenance
- Corporate functions

Use-cases supported by the reference architecture consist of:

- Design network management and optimize airlines' flight network regarding bases, destinations, routes, and frequency of flights between the destinations to optimize yield and profitability
- Customer experience on board for different product parts; i.e., cabin interior, seat and bed, services, in-flight entertainment, and multimedia
- Create offers and reservations and handle the (re)book and order
- Optimize revenue to steer capacity based on average earnings, and the management of availability, inventory, and reservation data
- Minimize passenger transfer time and aircraft ground time at an airport
- What speed to fly (possibly varying along the route)
- Derive crew demand from network capacity planning

Healthcare (Curriculum Reference: Topic 6, Item 6.3)

The Open Group Healthcare Enterprise Reference Architecture (HERA) describes a framework for the development of a reference architecture for a very wide range of healthcare companies. It covers the following capabilities:

- Coding, billing, and payment
- Provide care, promote health, prevent disease
- Health systems management
- Research and Development (R&D), services, manufacturing
- Education and training

Use-cases supported by the reference architecture consist of:

- Continuously improve patient experiences and health outcomes by enabling enriched data flow through every point of care
- Personalized care provides access for patients to their health data, knowledge articles, and appointment scheduling
- Patient service center to engage with patients through chat and other channels
- Virtual health bots on a secure collaboration platform to expand engagement and care delivery across remote locations
- Communicate the right information, at the right time, to the right people to provide safe and effective care to the patient

Government (Curriculum Reference: Topic 6, Item 6.4)

The Government Reference Model (GRM) [G21D] is an exhaustive and mutually exclusive reference model for the public sector. This model provides a categorization of terminology to describe the Business Architecture which can be leveraged as a framework across all governments.

The GRM assumes the application estate for the government is split across the following departments:

- International affairs and trade
- Defence and security
- General government and local services
- Young people and education
- Health and community wellbeing
- Judiciary, justice, and home affairs
- Financial

- Growth, housing, and environment
- Policy, performance, population, and innovation
- Shared services
- Transport and operations

Use-cases supported by the reference architecture:

- Creation of a personalized digital profile by using a centralized data hub will enable services to meet individual expectations and improve response times
- Re-designing processes by improving the communication and co-operation between professionals, the quality of decisions based on larger legal databases, and reducing the administrative burden
- Make better financial decisions with public finances, identify, and minimize risks, thus improving financial planning and performance
- Back-office transformation is driven by AI, robotics, and automation that can reduce manual work and remove the administrative burden from employees so that efforts can shift towards more productive roles
- Provide useful real-time information to journey makers including journey planning, route optimization, navigation, schedules, and performance reviews

School Education (Curriculum Reference: Topic 6, Item 6.5)

It covers the following capabilities:

- Strategy and governance
- Teaching and learning
- Research
- Commercial activity
- Enabling capabilities

Infusing Practical Learning with Case Studies

Case studies can be conducted in a variety of ways depending on the pedagogical style of the faculty. Academia can also reach out to professionals to help them curate case studies.

The class can be grouped into teams, and each team can study the case study and come forward to present their findings.

A mentor from industry (preferably a Business Architect or Enterprise Architect) could bring their experience to the classroom and conduct a workshop for the students with few use-cases from their experience (for example, application rationalization, setting up an Enterprise Architecture practice, governing through Architecture Review Board, technical debt reduction, ADM cycle walk-through for build/buy decisions, etc.).

Learning by Doing Through Projects

Some high-level guidance on structuring the project for this course are as follows:

- Projects can be conducted at a team level with a team consisting of a manageable level of students (based on the strength of the MBA program)
- The teams should have members from diverse backgrounds (engineering/commerce/other disciplines) and varied experience levels
- For the project topic, it is recommended to work on a real use-case of an organization; for instance, it could be to develop the current and target state architecture for the institute itself
- The team members should leverage architecture taxonomy and tools for building the project
- The project outcome should include the business problem/opportunity, the team's observation, recommended solution, approach, and methodology, tools used, and artifacts (catalogs, matrices, and diagrams) and applicable annexures
- The team should maintain a repository where project artifacts are maintained with version control
- A constant touchpoint with the faculty in-charge/industry expert is encouraged to keep track of the progress and for course-correction
- Any Personally Identifiable Information (PII) or business sensitive information acquired for the project should be handled as per the applicable industry standards

Suggested Books and Reference Material

The following books cover the course of Business Architecture in great depth and can be considered for reference purpose:

- *The Art and Practice of Business Transformation* [Ulrich and McWhorter]
- A Guide to the Business Architecture Body of Knowledge® (BIZBOK® Guide) by the Business Architecture Guild[8]
- *Business Architecture: A Practical Guide* [Whelan and Meaden]
- Business Architecture: The Missing Link in Strategy Formulation, Implementation, and Execution [Hadaya and Gagnon]
- Enterprise Architecture as Strategy: Creating a Foundation for Business Execution [Ross, et al.]
- The Business Model Navigator: 55 Models That Will Revolutionize Your Business [Gassmann, et al.]

[8] Refer to: https://www.businessarchitectureguild.org/page/002.

- Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers [Osterwalder and Pigneur]
- *Business Analysis and Leadership: Influencing Change* [Pullan and Archer]
- The TOGAF Standard, 10th Edition [C220]

Summary View of the Course Curriculum

This section captures the abstract view of the model course curriculum in a tabular format in Table 3.

Table 3: Recommended Coverage for the "Business Architecture in Practice" Course

Topic	Topic Details
Topic 1	Introduction to Business Architecture
1.1	Difference between Business Architecture and Enterprise Architecture
1.2	Evolution of Business Architecture
1.3	Popular Business Architecture Frameworks
1.4	Value Benefits of Business Architecture
1.5	Emerging Trends in Business Architecture
Key Topic References	The TOGAF® Standard, 10th Edition, a standard of The Open Group [C220] Open Business Architecture (O-BA) – Part I [P161] Top 10 Enterprise Architecture Frameworks [Terra Firma]
Topic 2	Business Architecture Foundation
2.1	Business Strategy
2.2	Business Modeling
2.3	Business Motivation
2.4	Digital Business Reference Models
Key Topic References	TOGAF® Series Guide: TOGAF® Digital Business Reference Model (DBRM) [G21H]
Topic 3	Business Architecture Framework – The TOGAF Way
3.1	Taxonomy and Core Concepts (View,Viewpoints, Artifacts, Business Capability, Business Processes)
3.2	Value Streams
3.3	Value Stream Description, Decompostion and Mapping
3.4	Business Outcomes/KPIs
Key Topic References	Open Business Architecture (O-BA) – Part I [P161] TOGAF® Series Guide: Business Models [G18A]
Topic 4	Capability-Based Planning
Key Topic References	TOGAF® Series Guide: Business Capabilities, Version 2 [G211]
Topic 5	Measurement Framework

Model Course Curriculum on Business Architecture for MBA Programs

Topic	Topic Details
5.1	Perspectives
5.2	Balance Scorecard Measures
5.3	Alignment from Top to Bottom
5.4	Targets, Resourcing, Initiatives, and Budgets
Key Topic References	Refer to: https://www.techtarget.com/searchcio/definition/balanced-scorecard-methodology. Refer to: https://processrenewal.com/business-architecture-essentials-measuring-performance.
Topic 6	Industry Reference Model with Use-Cases
6.1	Telecom
6.2	Commercial Aviation
6.3	Healthcare
6.4	Government
6.5	School Education
Key Topic References	Process Framework (eTOM) [TM Forum] The Open Group Commercial Aviation Reference Architecture Model [C224M] Healthcare Enterprise Reference Architecture (HERA) [S182] TOGAF® Series Guide: Government Reference Model (GRM) [G21D] Spanish Higher Education Enterprise Architecture Initiative and Capability [Y220]
Topic 7	Infusing Practical Learning with Case Studies
Topic 8	Learning by Doing Through Projects

Guidelines for Adoption of the Course

The intention of this chapter is not to prescribe, but to act as a guidance. Universities and their respective course curriculum committees should take this model course curriculum and modify it according to their need. The course curriculum has been developed to make it suitable for a typical three-credit MBA course to be covered in one semester/term/trimester.

Guidelines for Core Course

This curriculum may be used in a core course for MBA (General) or specialized streams, like Information Management/IT/IS/Systems Specialization in the following ways:

- A complete course on "Business Architecture in Practice", leveraging the model course curriculum as depicted in "Model Curriculum for a Business Architecture Course in the MBA Program"
- Relevant parts of "Model Curriculum for a Business Architecture Course in the MBA Program" may be used to design a course, such as "Architecting Solutions for Digital Enterprises"
- Universities can distribute the course across semesters/trimesters, with the final semester/term/trimester focused on the project

The pedagogy used may be a combination of case study, role play, class discussion, and group exercises.

Guidelines for an Elective Course

This curriculum may be used for an elective course on Enterprise Architecture. The elective course may be offered in the following ways:

- As an elective course of MBA (General) or Information Management/IT/IS/Systems specialization in a post graduate management program with an emphasis on Digital Transformation
- Offered and open to students across the finance, operations, and supply chain, or marketing specializations as a general elective with a focus on Digital Transformation and Change Management in the second half of the academic calendar of a management program

The pedagogy used may be a combination of case study, role play, class discussion, and group exercises.

Next Steps For Universities/HEIs and Faculty Members

This model curriculum has been developed by an expert team of Business Architects from various firms based on their experiences in the Business Architecture practice. It brings contemporary and relevant content into the classroom which will prepare the students for a successful career in architecture, tech management, and consulting.

As next steps, the following actionable points are recommended for Universities/HEIs and Faculty Members:

- Universities and faculty members may supplement this curriculum in the classroom with guest sessions by Business Architecture experts in the industry

- Guidance and mentoring sessions by Professors of Practice in the Business Architecture domain will help students relate to the Business Architecture methodology
- Internships and live projects may be sought from industry partners to bridge the gap between theoretical classroom learning and practice; these live projects may also develop into an active forum for developing new case studies
- Universities should sign a Memorandum of Understanding (MoU)/ partner with Enterprise Architecture tool vendors to provide hands-on training to their students

This model curriculum is developed by a pool of highly experienced Enterprise Architects. Supplementing this curriculum, mentoring interventions, internship activities, and globally recognized professional certifications form the enabling ecosystem available to Universities/HEIs as academic members of The Open Group. The ecosystem is specifically designed and curated to provide a continuum of capability development aligned to overall career growth and progression, as shown in Figure 9.

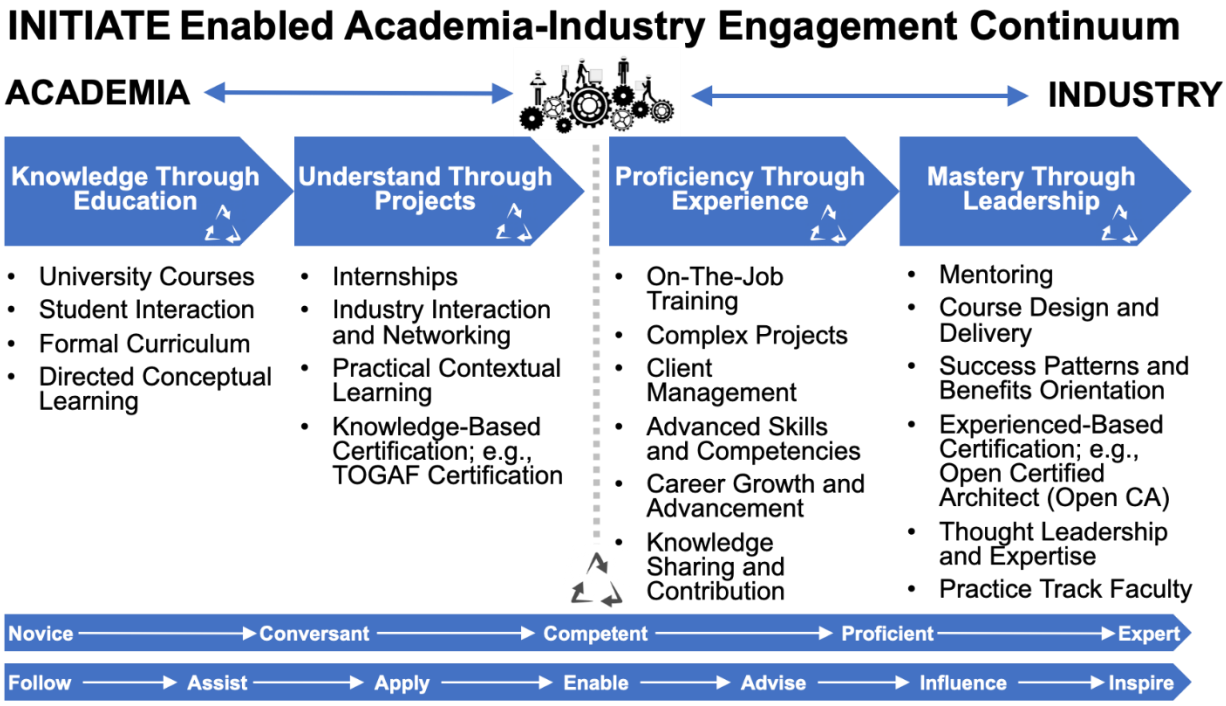

Figure 9: INITIATE Enabled Academia-Industry Engagement Continuum

Conclusion

The INITIATE Work Group hopes that this model curriculum will become a useful resource for a rich variety of MBA programs around the world. We expect that all programs that use it will modify it to fit their own purposes better, and we applaud this – the guidance this document provides is intended to be inspirational and supportive instead of being normative. We also hope that programs will share their experiences and give back to the architect community in the spirit of continuous education and collaborative learning. In an ever-changing world, it will be the endeavor of the INITIATE Work Group to keep the curriculum updated, contemporary, and relevant with regular future editions. Thank you for using this document. Please share it with those who might also benefit from it. We welcome your feedback.

Appendix A

Gauging Interest Through an Online Poll

Event Name: Creating Next-Generation Architects: A Roadmap to Fruition, April 2022 Audience: 120 – 170 live attendees.

- There is a growing demand for Enterprise Architecture skills in the industry
  - Strongly Agree: 50%
  - Agree: 17%
  - Neither Agree nor Disagree: 2%
  - Disagree: 1%
  - Strongly Disagree: 0%
  - Not answered: 30%
- Enterprise Architecture as a subject should be included in university curriculums
  - Strongly Agree: 34%
  - Agree: 18%
  - Neither Agree nor Disagree: 0%
  - Disagree: 2%
  - Strongly Disagree: 0%
  - Not answered: 44%

The key takeaways from the poll are:

- More than 95% of those who responded agreed there is a growing demand and need for Business Architects in the Industry
- It should be included as a subject/course in University curriculums

Acronyms & Abbreviations

ADM	Architecture Development Method
AGA	Australian Government Architecture
AI	Artificial Intelligence
ATL	Above The Line
BMM	Business Motivation Model
BPMN	Business Process Modeling and Notation
BRM	Business Relationship Manager
BTL	Below The Line
CAPEX	Capital Expenditure
CSR	Corporate Social Responsibility
CXO	Chief Experience Officer
DBRM	Digital Business Reference Model
DoDAF	Department of Defense Architecture Framework
FEAF	Federal Enterprise Architecture Framework
GRM	Government Reference Model
HEI	Higher Education Institution
HERA	Healthcare Enterprise Reference Architecture
IT	Information Technology
KPI	Key Performance Indicator
LTV	Lifetime Value
MBA	Master of Business Administration
MoU	Memorandum of Understanding
NATO	North Atlantic Treaty Organization
NPS	Net Promoter Score
O2C	Order to Cash
OMG	Object Management Group
P2P	Procure to Pay

PCF	Process Classification Framework
PESTLE	Political, Economic, Social, Technological, Legal, and Environmental
PII	Personally Identifiable Information
R&D	Research and Development
ROI	Return On Investment
SMART	Specific, Measurable, Achievable, Relevant, and Time Bound
SOA	Service Oriented Architecture
SWOT	Strengths, Weaknesses, Opportunities, and Threats

Referenced Documents

(Please note that the links below are good at the time of writing but cannot be guaranteed for the future.)

APQC — Process Classification Framework®, Version 6.1.1, published by APQC, July 2015; refer to: https://www.forgov.qld.gov.au/__data/assets/pdf_file/0027/319842/apqc_pcf_ver_6.1.1-final.pdf

Business Analyst Mentor — What is Business Architecture?, published by Business Analyst Mentor, 2023; refer to: https://businessanalystmentor.com/what-is-business-architecture/

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